Chapter 6: Trails

Trails in Redmond provide recreation, transportation, and support healthy, active lifestyles in urban, suburban, and rural settings. Redmond's trails are well used and there is high demand for more. The public's top priority is building more trails that better connect neighborhoods; second priority is more regional trails.

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***Above**: Redmond Central Connector Trail.*

Above: Sammamish River Trail.

Redmond provides **32 miles** of paved trails, **27 miles** of soft surface trails, and **4.5 miles** of blue (water) trails

- 2015 Inventory

6.0 Introduction

Redmond has more than 59 miles of trails within the City limits that community members' use for recreation and transportation. The trail system includes trails on land as well as routes on navigable water ways known as blue trails. Trails are used by many different types of users including, but not limited to, walkers, runners, road bicyclists, mountain bicyclists, equestrians, inline skaters and roller skaters, skateboarders, and ski trainers and blue trails for boating. Redmond's trails are developed by the City and private developers.

Trails are highly valued and well used by people who live and work in Redmond. Of those who responded to the PARCC Plan survey in 2015, 50 percent reported using a Redmond trail or pathway daily or multiple times a week[1].

6.0.1 Trail Classifications

There are four main types of trails within the system. Each classification is designed to meet different needs and accommodate different types of

[1] 2015, EMC Research. PARCC Plan Survey

use. This approach allows the City to provide a wide variety of trail experiences. It also guides trail planning so the right trails are built in the right places. The majority of Redmond's trails are mixed-use meaning that walkers, cyclists, equestrians and other users are allowed. Some restrictions to specific user types exist and are well signed.

Trail Classifications:

- Regional Trails
- Connector Trails
- Local Trails
- Blue Trail

Regional Trail Example: Bear Creek Trail

Connector Trail Example: Ashford Trail

Local Trail Example: Hidden Ridge Trail

Blue Trail Example: Sammamish River

Regional Trails

Regional trails are typically planned and designed with active transportation and high volume recreation use as their primary purpose. Regional trails are paved. Exceptions may be made for a gravel surface as an interim use condition with plans for paving in the future. Regional trails follow the design standards for Shared Use Paths as specified in the City of Redmond's Bicycle Facilities Design Manual Guidelines (2016 or latest version). In general, regional trails are completely separated from roads by distance or barriers and at-grade crossings of roadways are minimized to avoid conflicts. In instances where property is insufficient, regional trails may be placed adjacent to road ways. These trails are referred to as "urban pathways" or "side-paths" in other City planning documents. Regional trails should be a minimum of 12 feet wide under most conditions, with a minimum two-foot wide graded area on both sides that should be flush with the trail. Wider trails may be necessary when more than 2,000 people a day are using a trail, pending peak volumes. Ideally, paved regional trails should have an adjacent four-foot wide unpaved area to accommodate a wider set of user preferences. These trails accommodate a wide range of users. They are intended to be long-distance routes that span a good portion of the city limits leading to other jurisdictions and connect to other trails. Coordination with adjacent jurisdictions and transportation planning is central to developing a complete system of regional trails.

Chapter 6: Trails

Connector Trails

Connector trails are the key linkages between regional trails and other key areas. These trails can be paved or soft surface trails, but are typically narrower than regional trails, due to more limited use and possible land access issues. These trails are designed for recreation and transportation uses. Connector trails should meet the city's sidewalk standards as a minimum and have a width of six feet to eight feet. However, interim uses and sometimes long-term uses require the use of soft surface materials. These trails are in high demand by the community as key infrastructure to make walking and bicycling more convenient modes of travel within Redmond.

Exhibit 6.1: Lakes to Locks Trail System

The Lakes to Locks Trail is a system of blue trails that connects the Sammamish River in Redmond to Lake Washington and beyond. https://wwta.org/water-trails/lakes-to-locks-trail/

Local Trails

Local trails are typically soft surface trails that can range from one foot to five feet wide. These trails are typically designed for recreational uses such as neighborhood links, park trails, and hiking, off-road bicycling, and equestrian trails. These trails can also meet special interest activities such as BMX and mountain biking. Local trails are typically constructed with native soil from the site or with a surface of gravel or wood chip material if additional reinforcement is required. Trail surfaces are graded slightly to reduce the potential for erosion. Some local trails may require structures such as retaining walls or bridges.

Blue Trails

Blue trails are water trails along navigable waters within the city such as the Sammamish River and Lake Sammamish. The primary design criteria for blue trails include providing frequent access points to the water where personal water craft can be safely and easily transported from parking areas and providing adequate signage and route finding materials. Redmond is part of the Lakes to Locks Trail, a system of blue trails that connects the Sammamish River in Redmond to Lake Washington and beyond.

***Above**: WSDOT's SR 520 Trail in Redmond*

6.0.2 Regional Trail Planning

Continuing to connect the regional trail system has been and remains a priority for people who live in Redmond. When asked to rank potential projects, 66 percent of survey respondents ranked new regional trail projects as a priority[2].

Planning trails from a regional perspective is key to creating a well-connected trail system between jurisdictions. For the blue trail and the regional trail systems to connect and serve the greater eastside area, adjoining governments must work together. King County and the cities of Kirkland, Bellevue, Sammamish and Woodinville all share borders with Redmond and provide important links in the regional trail networks.

For several years, cities on the eastside of Seattle have worked together to create a vision for regional trails that will eventually connect many of those cities together. Redmond is home to some important links in the system such as a segment of the Sammamish River Trail, a segment of the 520 Trail, the PSE Powerline Trail, a portion of the East Lake Sammamish Trail, and the Eastside Rail Corridor that includes the Redmond Central Connector Trail. Redmond takes an active role in expanding and maintaining the regional trail network by working with other eastside jurisdictions through the Eastside Rail Corridor Regional Advisory Committee, with King County on the Sammamish River Trails east and west of the river, and with WSDOT on improvements to the SR 520 Bike Trail.

"Design and create trails, sidewalks, bikeways and paths to increase connectivity for people…"

- Policy CC-24

6.1 Policies and Goals

The Parks and Recreation Department follows the guidance of City policies and the community in developing goals to prioritizing capital trail projects. The Parks and Trails Commission reviews and comments on proposed goals and makes recommendations on goals to be adopted. As part of the development of the PARCC Plan, community members were asked to provide input on their vision for trail facilities. The following policies and goals reflect the guidance received from the Commission and the public.

[2] 2015, EMC Research. PARCC Plan Survey

6.1.1 Policies

Policies that guide the department in trail planning and development are found in various elements of the Comprehensive Plan. The following policies are highlights from other Comprehensive Plan elements that relate directly to the planning and development of trails.

The Goals, Vision and Framework Policies establish overarching direction for the City. One policy states that the City will "Maintain and promote a vibrant system of parks and trails that are sustainably designed, preserve various types of habitat and protect the natural beauty of Redmond" (Policy FW -29).

An important component of Redmond's character is its pedestrian and bicycle system that facilitates healthy lifestyles. The Community Character and Historic Preservation directs the City to design and create trails, sidewalks, bikeways and paths to increase connectivity for people by providing safe, direct or convenient links between the following:

- Residential neighborhoods,
- Schools,
- Recreation facilities and parks,
- Employment centers,
- Shopping and service destinations, and
- Community gardens. (Policy CC-24)

Redmond strives to be a "green" community that values its natural resources. The Natural Environment element directs the City to Encourage environmentally friendly construction practices, such as Leadership in Energy and Environmental Design (LEED), King County Built Green, and low-impact development (Policy NE-12).

Trails are an important component of the non-motorized transportation system that connects the community. The Transportation element directs the City to "Assign high priority to pedestrian and bicycle infrastructure projects and mitigation that address safety and connectivity needs, provide access to Downtown and Overlake Urban Centers, encourage safe and active crossings at intersections and routes to schools, provide linkages to transit, and complete planned bicycle and pedestrian facilities or trails." (Policy TR-12).

The bulk of City policies that pertain to trail planning and development reside in the Parks, Arts, Recreation, Culture and Conservation element. These policies provide more detailed direction including guidance on distribution of trails, promotion of trail use, design elements to include and important

Exhibit 6.2: Word Cloud - Responses to "What would you like to see LESS of on Redmond's Trails?"

collaborative partners. High priority projects are also identified within these policies. This plan proposes several updates and additions to trail related policies as detailed in Chapter 3. A consolidated list of trail related policies from across the Comprehensive Plan is provided in Appendix 6 A.

6.1.2 Goals

Community members shared their priorities during the public meetings, focus groups, and surveys as part of the PARCC Plan visioning process in 2015. The guidance gained from over 1,200 participants has helped formulate citywide goals for trail planning. Feedback from participants showed that safety of the trails is at the top of their priority list. They also expressed a strong desire for trails to be clean and well maintained. The community expressed the need for a trail system that accommodates a wide range of users, is accessible and easy to navigate. People want to have a trail system that is more connected across the city making it easier to move between neighborhoods, schools, places of work and shopping districts. Education and promotion of the trail system through up-to-date maps and trail etiquette information was also mentioned.

Above: *Bear & Evans Creek Trail through Southeast Redmond Open Space.*

"Keep working toward the goal of providing everyone that lives or works in Redmond with access to a trail within a ¼ mile from their home or office."

- Goal 8

Participants pointed toward several specific projects that were of interest to them. Projects mentioned included regional trail connections like the Eastside Rail Corridor, extension of the Puget Power (PSE) Trail and expansion of the Bear and Evans Creek Trail system. Amenities like way-finding signs, seating areas, water fountains, and lighting were mentioned as items that would make regional trails more desirable. Local trails were also of interest to participants. Participants expressed a desire for more short trails that better connect between neighborhoods.

Exhibit 6.2 shows a word cloud of the responses to an open ended questions presented at three public meeting. Conflicts between pedestrians (walkers) and cyclists (bikers) were noted most often as an item that needs to be addressed. Specific underlying issues that create conflicts between users were also noted, such as pedestrians behaving in unpredictable ways, bicycle speeds, and congestion.

A full list of feedback gathered from the public is provided in Appendix B of this chapter.

6.2 Inventory

An inventory of the existing trail system is a key piece of information needed for planning. It provides the context by which decisions for development, repair and replacement are made. An inventory of Redmond's trail system was conducted and the definition of trails was updated. Trail length, type, materials, and condition, based on routine inspection information, were evaluated. Finally, the quality of the trail system was also assessed, based on public opinion. The inventory was conducted in three phases:

1. Revised trail definitions
2. Physical inspections
3. Quality assessment

Exhibit 6.3: Mileage of Trails by Classification

Classification	Miles
Regional	27
Connector	17
Local	15
Total	59

In addition to trails listed above, Redmond also has 4 1/2 miles of Blue Trail (Waterways) along the Sammamish River.

6.2.1 Inventory Methodology

Trail Definition

During the inventory exercise, the definition for trails was updated to provide a more comprehensive view of trails in Redmond. The revised definition has been expanded to include any trail that allows access to the public in order to understand the trail system as a whole. The City's GIS trail mapping data was updated to reflect the new definition. The new data now includes all trails in Redmond that are managed by other providers such as King County, Washington State Department of Transportation, Lake Washington School District and private providers with some degree of public access. Including public trails provided by others allows planners to assess more accurately where additional trails are needed most. Another update was the inclusion of all pathways within parks as trails. Formerly, pathways and trails in parks were split between the City's sidewalk data and the trail data. Incorporating park paths into the trail data adds to a more comprehensive view of trails in Redmond and allows for a more accurate representation of the service provided by trails in Redmond.

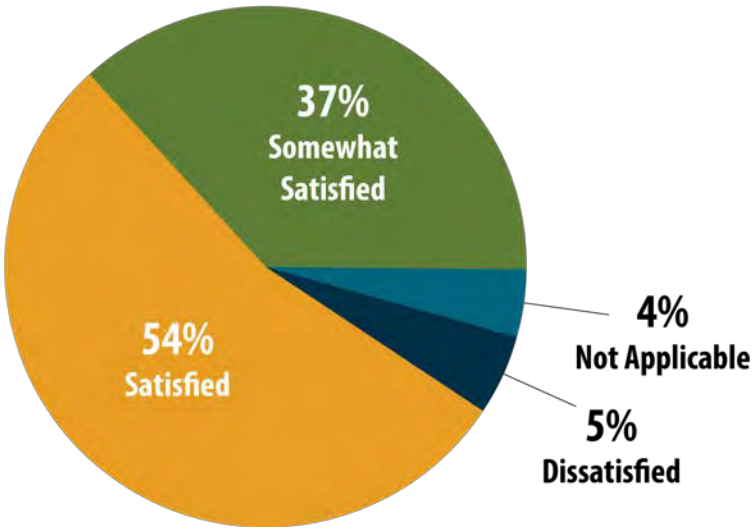
Physical Inspections

Physical inspections are conducted by Park Operations staff annually. The inspections include an evaluation of a trails condition, type, width, and surface. If minor problem issues are found, they are addressed immediately. If problems will require additional resources to address, they are added to the small capital projects list. See Chapter 7 Operations & Maintenance for details and potential projects.

Quality Assessment

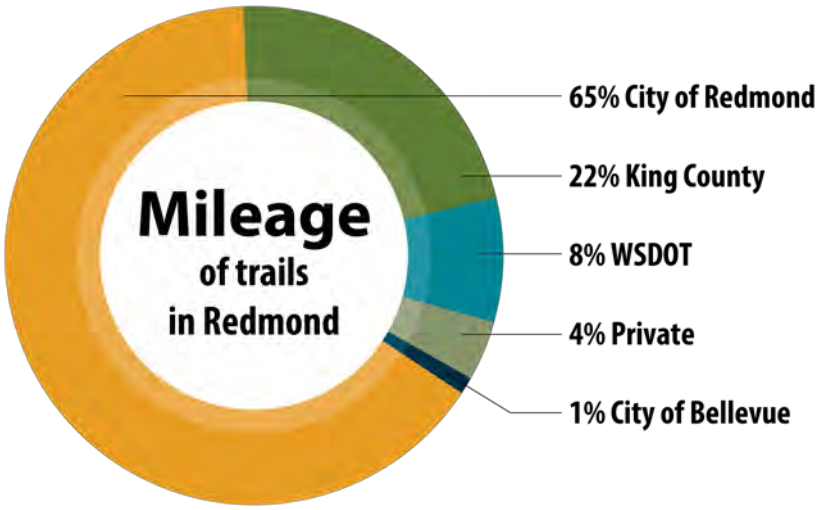
The quality rating of the trails system is measured by public opinion. The users of the system provide feedback the condition and performance of the system. The 2015 PARCC Plan survey asked people who live and work in Redmond to rate their overall level of satisfaction with "trails and pathways in Redmond" in which 86 percent of

Exhibit 6.3: Quality Rating: Level of Satisfaction of Pathways and Trails



2015, EMC Research, PARCC Plan Survey

Exhibit 6.4: Mileage of Trails in Redmond by Provider



respondents reported they were "highly satisfied" or "somewhat satisfied" with trails and pathways. The following *exhibit* shows a breakdown from the survey.

While the overall feedback on the City's trail system is positive, some negative feedback exists that provides guidance on how the system can be improved including overcrowding and user conflicts on busy trails like the Sammamish River Trail, bicycles moving at high speeds, and trail users' compliance with trail etiquette. See section *6.4 Demand* for more details.

6.2.2 Inventory of Trails

In total, Redmond has an inventory of more than 59 miles of trails within its borders. The City of Redmond owns and/or maintains 39 miles of trails, accounting for 66 percent of the total trail system inside city limits. The remaining 33 percent (nearly 20 miles) is provided by entities other than the City of Redmond.

The 2010 PARCC Plan reported approximately 40 total trail miles with 30 miles provided by Redmond. The City and others have built new trails since 2010 that are reflected in the updated number.

Blue trails are water trails where access points are provided and navigable non-motorized routes are recommended on local or regional maps. The Sammamish River and Lake Sammamish are the navigable waterways that comprise the blue trails in Redmond. They are also part of the Lakes-to-Locks blue trail system, as shown in Exhibit 6.1. The City, in partnership with King County, has provided a number of access points to the blue trails in the following locations:

- 116th Ave. NE and Sammamish River Trail
- 90th and Sammamish River Trail
- Luke McRedmond Park and Sammamish River Trail
- Marymoor Boathouse
- Idylwood Beach

Exhibit 6.5: Water Access Points in Redmond

*Red * represent the general locations for water access points.*

Redmond Central Connector Phase I, 2013

Redmond West Wetlands Boardwalk and Stairs Replacement, 2012

Smith Woods Trail, 2011

6.2.3 Accomplishments since 2010

New Trails

The City has added two miles (over 10,500 feet) of trail to the system since the last version of this plan. The following is a list of trails built and major trail improvements since 2010 with brief descriptions of each project:

Redmond Central Connector Phase I, 2013: One mile of paved regional trail was constructed along the former BNSF railway in downtown Redmond. This was the first of three phases of trail conceptualized to connect Redmond in a new way. Ultimately, this trail will be comprised of four miles of paved regional trail. Extensive public input guided the planning of the whole project. Phase I included new pedestrian and bicycle connections between Redmond's historic downtown and the Redmond Town Center, a contemporary shopping destination. It also included a 1.5 acre park between Leary Way NE and 161st Avenue NE, referred to as the "Station Area," where John Flemings's art piece "Signals" stands, a venue that hosts community events. Phase I will have the highest urban design quality of the three phases, because of its location in the densely populated downtown area. It includes integrated art throughout and extensive landscaping to create a unique community space. In the near future, the trail corridor will also house an extension of the Sound Transit East Link light rail. While accommodating the light rail will require some changes to trail, it will remain a vibrant part of Redmond's trail system.

Viewpoint Park Nature Loop, 2015: A 600 foot local trail was constructed that loops through the forested eastern slope of Viewpoint Park.

Smith Woods Trail, 2011 & 2015: This project, built in two phases, created a 600 foot soft-surface local trail through Smith Woods. The trail was constructed by volunteers as an Eagle Scout project.

Redmond Central Connector Phase II, 2016: 1.3 mile paved regional trail along the former BNSF railway through Downtown and the Willow's Road corridor. This project is under construction in 2016 as this plan is in publication. It is the second of the three phases planned for the overall project. This phase connects

Downtown to DigiPen, Overlake Christian Church and other destinations in the Willows Road corridor. The project includes the retrofit of a trestle bridge over the Sammamish River, retrofit of a bridge over 154th Avenue NE, integrated art, and crossing improvements.

Major Trail Maintenance

In addition to building new trails, the City has conducted extensive maintenance on one third of a mile of existing trails, including:

Bear Creek Trail Root Damage Repair, 2010: A segment of the Bear Creek Trail was found to have potential trip hazards and decreased accessibility from tree root damage. This project removed damaged asphalt, addressed the tree roots and repaved the affected trail section.

Redmond West Wetlands Boardwalk and Stairs Replacement, 2012: This project replaced deteriorating boardwalk and trail stairs to keep the trail open for public use.

Grass Lawn Park Trail Resurfacing, 2015: This project removed asphalt from an existing trail in the park and resurfaced with gravel. The trail passes through a forested area of the park. Over time, tree roots have lifted the asphalt causing damage to the trail surface. The gravel surface is better for the health of the trees and can be more easily maintained with the continued growth of the roots.

Hidden Ridge Trail Resurfacing, 2015: This project removed asphalt from sections of the Hidden Ridge Trail. Similar to the Grass Lawn Park Trail project, the transition to gravel addressed accessibility issues with the trail and created an environment that is better for the forest trees that surround the trail.

Watershed Preserve Bridge Repair, 2016: A trail bridge at the Watershed Preserve was in need of repair. This project reconstructed supports on the bridge and addressed sinking conditions and associated trip hazards.

6.3 Need

Trails improve our overall quality of life similarly to parks, in that they can also provide the following benefits:

Transportation: Trails are an important part of a well-connected pedestrian/bicycle network that help reduce traffic pressure on roads by providing an option for people to travel by foot, bike, or other non-motorized means. When connected with sidewalks and bike lanes, trails become important links between destinations within the community as well as the surrounding area.

Conservation: As discussed in Chapter 5, trails are one way that the City can preserve environmentally sensitive areas, culturally significant property, and historic properties. Redmond has many great trails that allow residents access to conservations areas including the Watershed, Redmond West Wetlands, Juel Park, Farrel McWhirter Park, Smith Woods and more.

Place of Tranquility: Trails provide a place to get away from our hectic daily lives to enjoy fresh air, relax, have physical activity, and relieve stress. Research shows that exposure to natural environments improves mood and can lead to reduced stress levels and blood pressure[3]. Regular physical activity is essential for health and wellness[4].

Community Building: Trails provide places for community members to recreate and socialize together, thereby strengthening relationships within the community. Many of our residents live in high density housing, where meeting your neighbor in the yard is no longer an option; therefore public places become more vital to developing neighborhood connections[5].

Recreation: Trails provide places for active and passive recreation. The number of people who use Redmond's trails is very high. The 2015 PARCC survey reports that 72 percent of respondents said they use a Redmond trail or pathway every day to a few times per month. Only 4 percent reported not using trails at all[6].

Promoting Creativity, Development and Education: Trails provide places of discovery in the form of built and natural environments. Children and adults alike can learn and develop new skills in bicycle riding on a trail, discovering new plants or birds on a walk, or learning about the environment or an artwork on an interpretive sign along the way[7].

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[3] 2010, K. Frances. *Parks and Other Green Environments: Essential Components of a Healthy Human Habitat*, NRPA. (http://www.nrpa.org/uploadedFiles/nrpa.org/Publications_and_Research/Research/Papers/MingKuo-Research-Paper.pdf)

[4] Godbey, G., A. Mowen, 2010, *The Benefits of Physical Activity Provided by Park and Recreation Services: The Scientific Evidence.* NRPA. (http://www.nrpa.org/uploadedFiles/nrpa.org/Publications_and_Research/Research/Papers/Godbey-Mowen-Research-Paper.pdf)

[5] Francis, M., 2007, *How cities use park for Community Engagement,* American Planning Association. (https://www.planning.org/cityparks/briefingpapers/communityengagement.htm)

[6] Redmond Parks and Recreation Survey, June 2015, EMC Research

[7] Witt, P., L. Caldwell, 2010, *The Rationale for Recreation Services for Youth: An Evidence Based Approach.* NRPA. (http://www.nrpa.org/uploadedFiles/nrpa.org/Publications_and_Research/Research/Papers/Witt-Caldwell-Full-Research-Paper.pdf)

Economic: There are a variety of studies conducted around the world that have shown that trails provide economic value to cities and citizens in a number of ways including property value, tourism value, direct use value, health value, community cohesion value, and reducing the costs of storm water management and air pollution[8,9]. In addition, large companies frequently look for cities with a thriving cultural center when opening new offices[10].

Property Value: More than 30 studies have shown that property values are higher and directly related to proximity to and the quality of the park or trail. Most studies show increased value when properties are located 500 feet to 2,000 feet from a park or trail. This benefits the property owner and the city, since property taxes increase with the value of the property (footnote 9).

Tourism Value: When a trail attracts people from outside of town, or even outside the neighborhood, it is likely that those people might spend money nearby, whether it is for a snack, meal, shopping, or to see an event, and possibly spend the night at the local hotel[11].

Direct Use Value: Trails are free to the public or heavily subsidized, therefore they provide a tangible value to people who might otherwise have to use a commercial facility to realize the same benefits. Therefore the direct use value is the cost savings that the trail system provides the public (footnote 11).

Health Value: Parks and recreation facilities typically provide a means of physical activity for the public, which has been proven to reduce some chronic diseases that cost our community a considerable amount of money (footnote 4).

Reducing the Cost of Managing Urban Stormwater: Co-locating parks and stormwater management sites and using low-impact development techniques can reduce the cost of land acquisition and treatment of stormwater (footnote 11).

Removal of Air Pollution by Vegetation: Vegetation in city parks plays a role in improving air quality and reducing pollution costs. Trees and shrubs remove air pollutants such as nitrogen dioxide, sulfur dioxide, carbon monoxide, ozone, and some particulates. Leaves absorb gases, and particulates adhere to the plant surface, at least temporarily (footnote 11).

[8] 2009, P. Harnik and B. Welle. *Measuring the Economic Value of a City Park System*, Trust for Public Land.
[9] Crompton, John (2005). "The Impact of Parks on Property Values: Empirical Evidence from the Past Two Decades in the United States". *Leisure Management* 10, 203-218
[10] 1995, Crompton & July 27, 2009 Congressional Record—House H8825
[11] Harnik, P., & Crompton, J.L. (2014). Measuring the total economic value of a park system to a community. *Managing Leisure*, 19(3), 188-211. (Open Source: http://agrilifecdn.tamu.edu/cromptonrpts/files/2011/06/Measuring-the-total-economic-value-of-a-park-system-to-a-community.pdf)

6.4 Demand

Several approaches were used during outreach with the community in an effort to understand the use and demand for trails in Redmond. The 2015 PARCC Plan survey included several questions about trail use in Redmond. Public workshops included interactive sessions dedicated to the discussion of trails. Additionally, in 2015 select trails were monitored to collect data on user counts as part of the "You Count" program.

The "You Count" program is an automatic user count system for Redmond's parks and trails. It was installed in 2015, and monitors ten trail locations throughout the city. The program uses equipment fitted with an infrared light beam to count users. Each time a user passes through the beam a count is recorded with the date and time. The data is collected on the equipment, then downloaded to a computer and analyzed to identify trends in use. Regional trails were selected as the focus of trail monitoring because they typically have the highest numbers of users.

More information on the survey is provided in Chapter 3. Some of the most common themes found in this data are summarized as follows:

1. Redmond's trails have high use and there is demand for more miles of trails and widening of existing trails.
    - 50% of respondents use trails multiple times a week
    - 40% of respondents desire more short trails that better connect the existing trail system
2. People who live and work in Redmond are highly satisfied with the trails in Redmond and feel that it is important that they are clean and well maintained.
    - 86% of respondents report being "somewhat satisfied" and "very satisfied" with Redmond's trails and pathways.

Exhibit 6.6: You Count Monitoring System

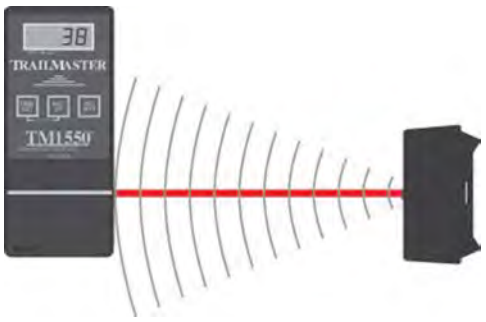
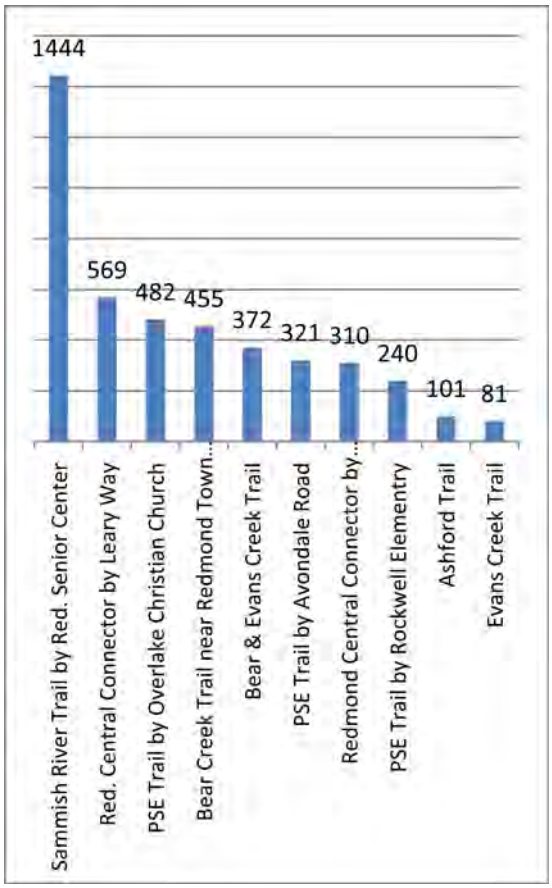


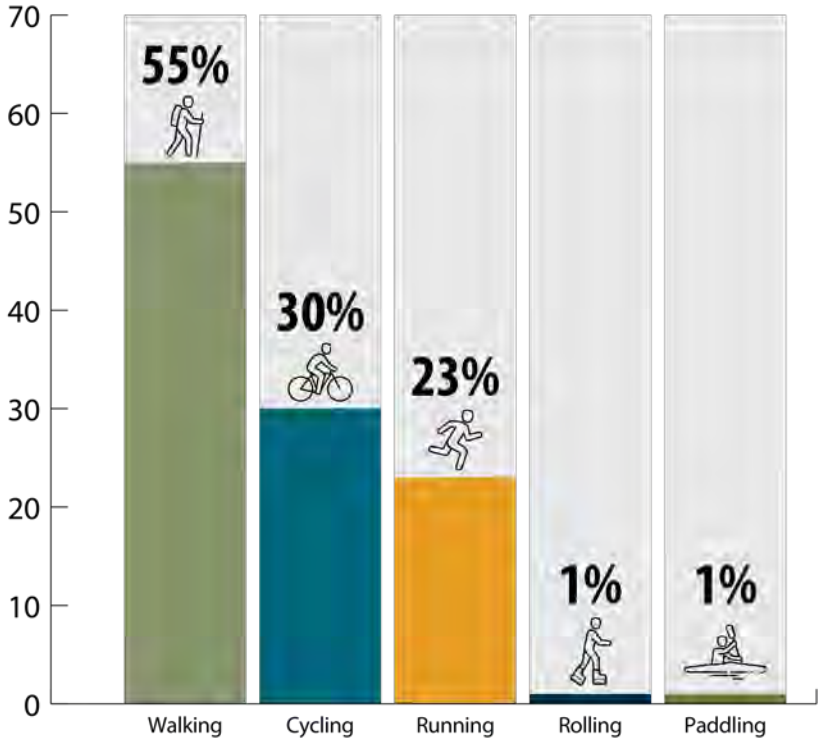
Exhibit 6.7: Average Daily User Counts



- When asked to rank the qualities of trails, 97% of respondents said that it is important that they are safe to visit or well maintained and 98% said that trails being clean is important.

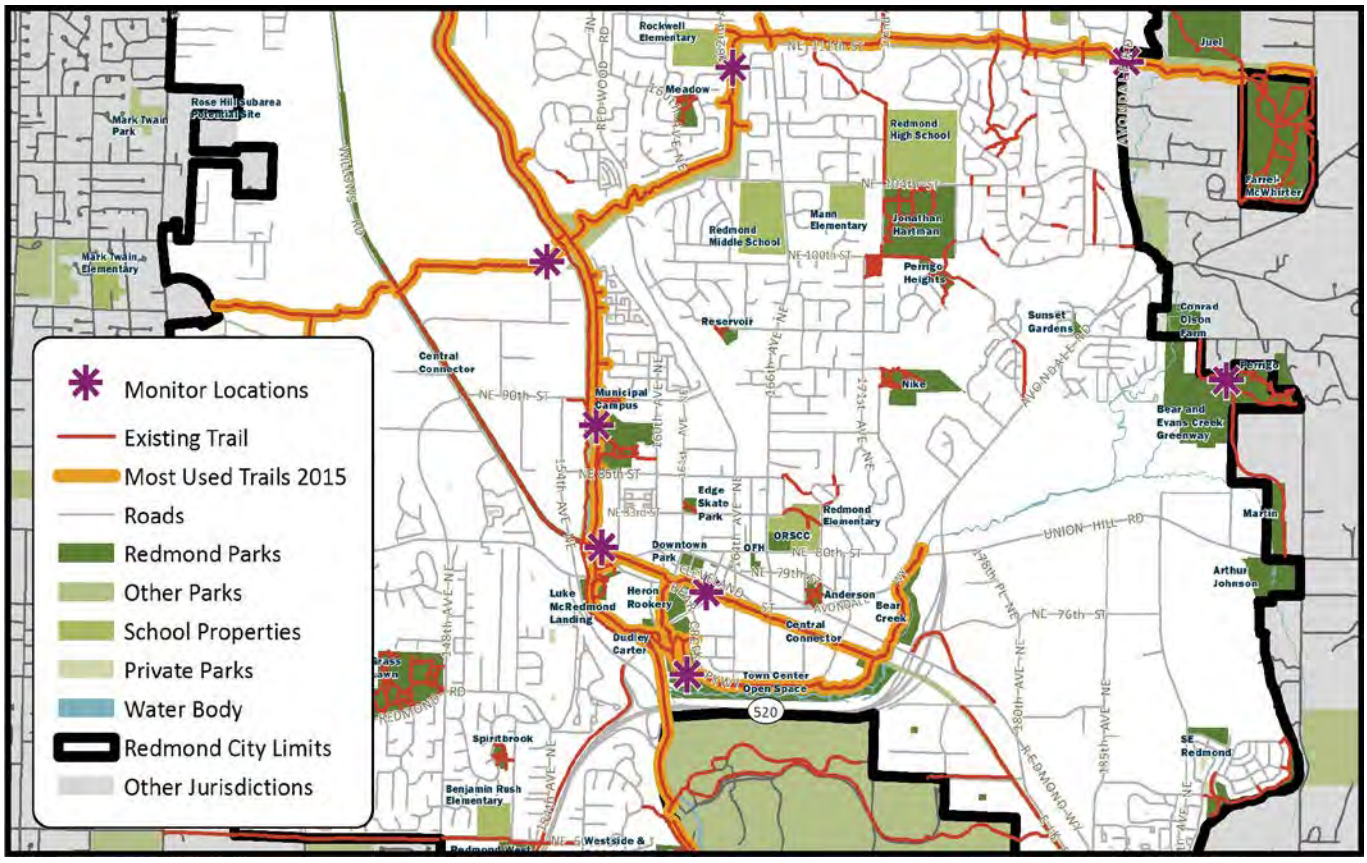
3. Overall, people want more small trails that enable easier travel around town, and also want the City to continue developing additional connections to the regional trail system.
    - 69% of respondents desire unpaved local trails through parks and greenspaces
    - 66% of respondents would like the City build more regional trails.
4. Over half of people in Redmond report walking (45%) or biking (10%) to local parks but do so more often in areas with better pedestrian/bicycle connectivity.
5. When asked about prioritizing trail projects, respondents stated that creating a better connected trail system within Redmond was preferred (40% of respondents) but a balanced approach between short connecting trails and adding more regional trails was important.
6. The most used trails include:
    1. King County Trails
    2. Redmond Central Connector
    3. Bear Creek Trail

Exhibit 6.8: Types of Trail Users



From public feedback exercise conducted during outreach meetings spring 2015 It is assumed that people walking dogs are included in the "Walking" category.

Exhibit 6.9: You Count Locations and Most Used Trails



6.5 Level of Service

Redmond's Comprehensive Plan prioritizes the need to plan, build and maintain a trail system that connects the community and is easily accessed by a variety of users. One of the most direct ways to project the public demand the trail system is through a level of service (LOS) analysis. The LOS analysis for trails in this plan is based on the access to trails within city limits, distribution of trails, and their quantity. To measure these factors, a service area method was used to calculate the level of service provided by the City's trail system.

The LOS method used included three general steps that are outlined below and described in detail in the LOS Methodology section. The result of this exercise was the generation of trail project ideas and information that was used to prioritize potential projects. See section 6.6 Implementation for details on the development of trail projects.

LOS General Steps:

1. Determine the current service provided by the inventory of existing facilities
2. Compare current service to the service standard set by the City and
3. Identify the gaps in service

6.5.1 LOS Methodology

The level of service methodology for trails follows the Washington State Recreation and Conservation Office (RCO) guidance.[12] The 2010 PARCC Plan LOS trail methodology was 0.35 miles of trail per 1,000 population by neighborhood. This method is relatively simple to measure and has been standard practice in the Parks and Recreation industry for decades. However, since the late 2000's the National Recreation and Parks Association (NRPA) and other industry leaders have suggested that this method results in an overly simplified view for planning trails and suggest using a more meaningful approach that accounts for user needs, gaps in service, or safety issues as examples.

Current Service Provided:

For this plan, a LOS method was developed around the geographic service area provided by the trail system as seen in Exhibit 6.13. The service area method was selected because several factors, explained in the following sections, could be considered simultaneously, such as:

- Target population
- Walkability
- Geographic equity
- Credit for trails by other providers

Target population: As described in Chapter 1, the target population used in this analysis includes Redmond's residential population plus 25 percent of employment population. While people that work in Redmond use City's facilities, it is

[12] RCO, 2014. Manual 2, Planning Policies and Guidelines

Above: *Trees along Sammamish River Trail*

Exhibit 6.10: Trail Service Area Credit by Provider

Provider	% Credit Applied to Service Area
City of Redmond	100%
City of Bellevue	100%
King County	100%
WSDOT	100%
LWSD	50%
Private	25%

During the LOS analysis, these percentages were applied to the service areas calculated for trails developed by these providers. The colors in the table are reflected in the LOS maps found in Appendix 6 E.

estimated that only a quarter of the employment population does so. The forecast populations were derived from the City Planning Department which calculates growth rates. Population data was paired with the service areas to calculate the percent of the population served. The data includes estimated populations for both residents and employees for the years 2015 and 2030.

Walkability: Walkability is facilitated by the sidewalks and trails built within the city. When there are obstructions to the network of sidewalks and trails, such as gaps in the system, rivers or large roadways, the ability for walkability decreases. To account for walkability, a GIS model of existing sidewalks and trails provides a real-world perspective to the analysis. Studies indicate that people(or individuals/) are willing to walk only so far before they choose an alternate mode of travel, such as a vehicle, and that a preferred walking distance for a routine trip can range from ¼ mile to 1 mile in length[13]. In light of this research, the conservative distance of ¼ mile walking distance is used as the basis for measurement in this method.

Geographic equity: Use of the service area method allows planners to analyze geographic equity at a glance. This analysis examines the amount of access each neighborhood has to the trail system. Areas not covered by the service area are considered to be underserved and become priority locations for additional facilities and/or connections.

Credit for trails by other providers: Beginning with the 2010 PARCC Plan, the City has included trails provided by other agencies, entities and jurisdictions in the City's trail inventory. A service credit percentage was applied to trail service areas in the level of service analysis in an effort to more accurately account for service provided by trails managed by other entities.. Trails with unrestricted public access are assigned 100 percent service. Trails provided by LWSD are assigned 50 percent service since their trails are open approximately half of the time. Exhibit 6.14 describes providers and the percent credit applied to their respective service areas.

Determine Current Service Provided

The first step in this analysis was to determine the current service provided by the existing inventory of trails. This work was conducted by staff using GIS as described in section 6.2 Inventory. Once the GIS inventory was updated, the service area provided by existing trails was generated. The service area was then used to determine the percentage of the population served by the trail system. To create the geographic service area, every point of connection to the trail system was mapped. Then, GIS was used to measure a ¼ mile distance along the sidewalk-trail network from each point to map the area served by each point of connection. This analysis was done on a citywide scale as shown in Exhibit 6.11.

Service Standard

The service standard provides a benchmark by which the current level of service is measured. The difference between the service standard and the current level of service is identified as the service gap, described in the following section. The overarching goal for the measure is to provide convenient access to parks and trails for all

[13] 2011, Ryan Donahue. Pedestrians and Park Planning: How Far Will People Walk?, *https://cityparksblog.org/2011/05/13/pedestrians-and-park-planning-how-far-will-people-walk/*

who live and work in Redmond. The method used calculates the percent of the population within a ¼ mile of an entry point to a trail.

6.5.2 LOS Results

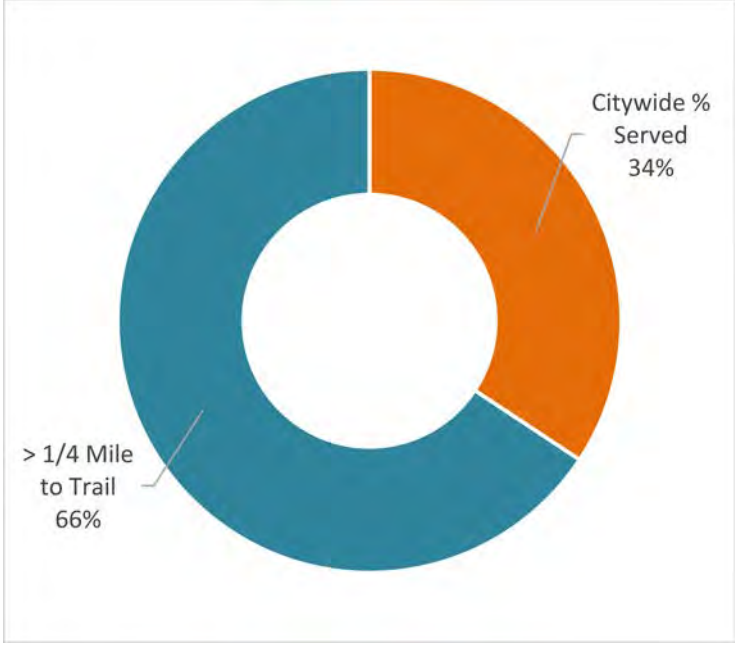
Gaps in Service

Measuring the current service level against the service standard provides the gap in service for the trail system. Using the service area method allows planners to quickly identify the geographic locations of the city that are underserved, and then prioritize future projects in those areas. A map of the trail service area using 2015 trail data is found in the Appendix. Dark orange areas on the map are those served by City of Redmond trails. Lighter orange and tan areas are those served by other entities as noted in the map legend.

The percent of the target population served by the existing trail system is shown in Exhibit 6.11. In 2015, the trail system provided convenient access to trails for 34 percent of the target population of who live and work in Redmond. This graph indicates that there is a gap in trail service. About 66 percent of the target population is not within a quarter mile of a trail access point from home or work.

The expanded service provided by potential trail projects is displayed in Appendix 6 E Maps. Areas shown in purple are those that would be within a quarter mile of a trail entry point and considered served by the trail system. This analysis allows planners to quickly see the potential benefits of proposed projects.

Exhibit 6.11: Percent Population Served by Trails.



Estimated % pop served in 2015. Redmond's residential population in 2015 was estimated to be 58,800 and 25% of the employee population was estimated to be 20,180.

LOS Standard

The target population has convenient access to public trails from home or office. This is calculated as a quarter mile from trail access points.

Target population

100% of residential population plus 25% of the employment population

6.6 Implementation

One of the goals of the PARCC Plan implementation is to develop and deliver capital projects that serve the priorities of the community. Several steps are taken in the development of the list of projects recommended to move forward to development as described below. Chapter 10. Capital Project Recommendations provides the details on project priorities, cost estimates, and the funding process.

Early morning crews working in Bike Park

Exhibit 6.12: Implementation Steps for Recommended Projects

Tosh Creek Trails

6.6.1 Developing the Recommended Project List

Capital projects are those that cost more than $25,000, which can depreciated over time and meet at least one of the following criteria:

- New facility, or increases square footage of an existing facility
- Changes the function of a facility
- Increased the capacity of a facility

One of the main objectives of this plan is a recommended list of trail projects for implementation. The steps listed in below are taken to ensure that the recommended list of projects provides the highest value to the community.

Potential projects identification: The goal of this step is to generate a universal project list. This list is a clearinghouse of all trail ideas and concepts generated in prior planning efforts and during the public outreach for this plan. Project ideas range from conceptual to fully planned and adopted trail projects. The first step in creating this list is to consolidate existing trail project ideas from previous planning efforts such as the 2010 PARCC Plan, the City's Transportation Master Plan, Comprehensive Plan (including Neighborhood Plans), and Zoning Code. New trail project ideas are generated during outreach to the public and to City staff.

Feasibility evaluation: The goal of this step is to refine the universal trail project list based on project feasibility. The feasibility assessment process includes GIS-based steps that analyzed trail service area (see LOS section), gap analysis, connectivity, population density, and constructability. Project ideas are mapped and scored by each filter. The GIS filtering and scoring identifies potential trail projects that provide the greatest benefit to the city geographically. Project ideas are also evaluated by engineering and construction management staff to evaluate constructability.

Planning level studies: Potential projects that score highly in the feasibility evaluation are given more definition such as high level scope details and preliminary cost estimates.

Project ranking: After scope and cost details are determined, project ideas are scored and ranked based on the ranking criteria as described in Chapter 10 Capital Project Recommendations. The product of this step is a prioritized list of potential projects.

Project recommendation: The prioritized list of potential projects is then recommended for funding. See Chapter 10 Capital Project Recommendations for details.

Acquisition: If the City does not hold rights to the property needed for a project, acquisition of those property rights is necessary. Acquisition is commonly accomplished through gaining title to the land or receiving easement on the property.

Design & Construction: After property rights are acquired, projects are moved into design. This stage may include master planning, environmental and other studies, preliminary design and the creation of construction documents. Project plans and specifications are then released for bidding to select a contractor. Once a contractor is selected and a contract is awarded, the project begins moving through construction. Once constructed, trails are open for public use.

Operation & Maintenance: Some projects are programmed with recreational activities which require city staff to operate. Also, all projects require regular maintenance to ensure safe use and to maximize the facility's longevity. Eventually all facilities will require renovation or replacement, which may trigger another capital project.

Project Descriptions

Below are descriptions of ranked projects from the recommended list. Project numbers shown in parentheses, for example (32), are reflected in Appendix 6 E: Proposed Trail Projects Map.

Near-term Priorities:

NE 100th Street to Willows Trail (TR 1)**:** This connector trail would link 100th Avenue to the pedestrian and bicycle facilities along Willows Road, including the Redmond Central Connector Phase II. Public road right-of-way exists for most of this project. The right-of-way abuts the private campus of the DigiPen Institute.

Redmond Central Connector Linkages: This series of connector trails designed to improve access to the Redmond Central Connector (RCC) trail. It is estimated that these projects can be completed within properties currently held by the City. This project provides for access points to the trail at the following locations:

- NE 87th St connection (TR 2) including a crossing of Willows Road with a rectangular rapid flash beacon and trail segment
- NE 84th St connection (TR 3) including a crossing of Willows Rd. with a rectangular rapid flash beacon, trail segment and stairs over the steep slope to the trail
- NE 90th St connection (TR 4), by adding a bike lane connection
- Trail connection to the Red 160 apartments (TR 5)
- Crossing at NE 76th and 168th Ave. NE (TR 7)

Redmond Central Connector Phase III, Artist rendering from Redmond Central Connector Master Plan, 2011

Tosh Creek Trails (TR 6): This proposed local trail system in the Overlake neighborhood would that would connect various housing developments and provide recreational hiking opportunities. Trails would be constructed in a forested area with steep slopes surrounding the Tosh Creek watershed. The system is conceptualized with a main trail that connects from NE 40th Street following Tosh Creek to West Lake Sammamish Parkway. Multiple side trails are conceptualized that connect residential areas across the creek. Currently, all the property in the drainage is privately owned. Some form of public access is needed for any trail development to occur. Implementation of a trail system is proposed to be completed in three phases.

Mid-to-Long-term Priorities:

Willows/Rose Hill Neighborhood Connections: Multiple opportunities exist in the Willows/Rose Hill neighborhood to better connect residential areas to business districts with short local trail segments.

- NE 85th Street and NE 84th Street connections to 139th Avenue NE (TR 9): Creating local trails in line with NE 85th Street in existing right-of-way, and NE 84th Street would allow better east-west travel by foot and bicycle through the area. Some acquisition in line with NE 84th Street would be necessary.
- Redmond/Puget Sound Energy (PSE) Trail (TR 40): The City would like to gain formal public access for a trail that runs north-south along a PSE utility easement from approximately 60th Street in the Grass Lawn neighborhood to NE 124th Street.
- Willows Fjord Trails: There are a number of local trails that meander through the wooded area to the north of the Redmond/Puget Sound Energy Trail that are known as the Willows Fjord Trails. Most of these trails are on private property and the City will investigate the logistics of gaining public access to those trails. (Not numbered)
- NE 87th Street to 143rd Court: This connector trail would allow people to get to the businesses along 148th Avenue. Acquisition is required. (Not numbered)

Redmond Central Connector Phase III (TR 10): Phase III of the Redmond Central Connector is the last 1.6 miles of paved regional

West Sammamish River Trail to West Lake Sammamish Pkwy Connection

trail that would connect Redmond to the remainder of the Eastside Rail Corridor trails in Kirkland and King County across NE 124th Street. The cities of Redmond, Kirkland, and King County are also exploring options to create a more direct route from Redmond to Totem Lake via Willows Road to the Cross Kirkland Corridor, along Willows Road or NE 124th Street. This phase is not currently funded; however, the project ranks highly among other trails. If the City Council prioritizes this project it would improve active transportation modes to offices on Willows and to the urban centers in Downtown Redmond and Totem Lake.

Bear & Evans Creek Trail 8 – Avondale Rd to Perrigo Park Segment (TR 11): This regional trail is a leg of the Bear & Evans Creek Trail would connect the Bear Creek Trail at its north end of near Avondale Road to the Bear & Evans Creek Trail running through the Bear & Evans Greenway and Perrigo Park. This project would close a significant gap in the regional trail system and would make pedestrian and bicycle travel to the east side of Redmond much easier and safer. The project would be a paved portion of regional trail that passes through and next to a City-owned wetland bank formerly known as the Keller Farm. The wetland bank will provide a scenic backdrop for the trail and ample opportunities for public education about wetlands and their benefits. Acquisition of trail corridor is required on two properties for the project.

Another leg of the Bear & Evans Creek Trail (TR 21), called segment 10, is planned to make an east-west connection along the north border of the wetland bank. This connection is a lower priority than segment 8 since it would largely serve the same populations. Additionally, a pedestrian/bicycle facility along NE 95th St, as proposed by City Transportation Planning, would provide better service.

West Sammamish River Trail to West Lake Sammamish Pkwy Connection (TR 12): This project proposes a connector trail that would address a gap in the pedestrian/bike system, between Old Redmond Road and West Lake Sammamish Parkway to the Sammamish River Trail. The project includes a pedestrian/bike facility along W Lake Sammamish Pkwy between Old Redmond Road and 154th Avenue NE, a crossing of 154th Avenue NE, new trail construction down to the existing West Sammamish River Trail (King County) and paving of that trail to Leary Way. Coordination

with King County would be required for this project and some acquisition may be necessary.

Overlake Multiuse Trails (urban pathways, RZC 21.12)

Marymoor to West Lake Sammamish Pkwy Trail (TR 13): This project would connect the existing southern end of the Sammamish River Trail to West Lake Sammamish Pkwy with a paved regional trail. Currently, this stretch of West Lake Sammamish Pkwy provides bike lanes only. Some acquisition may be necessary for this project and coordination with King County would be required.

154th Ave. NE Trail to Old Redmond Rd. (TR14): This project proposes a connector trail to link the residential areas along Old Redmond Road to the Redmond Central Connector Trail via a trail that parallels 154th Avenue NE. It is anticipated that this project could be built inside existing street right-of-way. This project is referred to in the City Transportation Facilities Plan (TFP) as the Grasslawn Non-motorized Connection Connecting residential areas to regional trails in this way allows people to move more easily from home to work or other destinations around Redmond.

Overlake Multiuse Trails: - "Urban pathways" are planned for 148th Avenue, 156th Avenue and in a looping system in Overlake Village. These facilities are designed to accommodate pedestrians and bicyclists as typical trails are but they are planned to be located in street rights-of-way instead of on separated properties. Overlake is planned to have significant population growth between 2016 and 2030. Providing sufficient pedestrian and bicycle facilities for the people who will be there is key to the livability of the area. Overlake has very little open land where trails can be built to typical standards which has led to the creation of urban pathways (RCZ 21.12). Specific projects include:

- 148th Ave NE Multiuse trail, Bridle Crest Trail to 520 interchange (TR 18). Classified as a regional trail.
- 156th Ave NE Multiuse Trail (TR 19). Classified as a regional trail.
- Overlake Urban Pathways (TR 37). Classified as connector trails.

Bear & Evans Creek Trail – East Redmond Corridor: The Bear Creek and Evans Creek corridors present opportunities to create significant regional trail connections. The 2009 East Redmond Corridor Master Plan presents a vision where a string of parks are all connected by a

Nike Park Area Trails

Redmond/Puget Sound Energy Trail Gap

Artist concept rendering of proposed Overlake Village pedestrian and cyclist bridge

regional trail along Redmond's east border. Some of the trail segments in the plan have been built since the plan was created but several segments remain to be completed. While some trail corridor for the following segments exists, acquisition of additional corridor is needed.

- Segment 1 (TR 15) connects Perrigo Park to Farrel McWhirter Park, two of Redmond's most popular recreation destinations. There are alternative routes conceptualized for this connection shown on the project map as projects (23) and (24).
- Segment 5 (TR 26) fills the gap between two existing trail segments and connects Martin Park and Arthur Johnson Park to the Southeast Redmond Open Space.
- Another leg called the "Lakeside Trail" (TR 31) extends the trail south to Highway 202, Redmond Way.
- Segment 7 (TR 22) links to King County's East Lake Sammamish Trail by paralleling 187th Avenue NE.

School Connections: School grounds provide a number of opportunities to make it easier for children to walk or bicycle to school. Coordination with Lake Washington School District for access to the properties and maintenance would be needed for the following projects.

- 161st Avenue NE to the Rockwell Elementary School (TR 25): The pavement of an existing connector trail has fallen into disrepair making it challenging for some users to traverse. A pavement replacement project would address the issue and improve access to the school.
- Benjamin Rush Elementary School to the Bridle Crest Trail (TR 29): Creating a local trail connection from the neighborhood on 150th Avenue NE through the school campus to the Bridle Crest Trail would facilitate walking and bicycling to the school.

Bear Creek Trail to Marymoor Park (TR 27): This local trail would provide a more direct link between the Bear Creek Trail and Marymoor Park. It includes a bridge over Bear Creek and a trail under SR 520. This project would require public access on WSDOT and King County properties. The Redmond Town Center Open Space includes sensitive areas that would need to be considered for this project. The trail would make getting to Marymoor Park and all of the recreation and cultural opportunities much easier.

Nike Park Area Trails & Centennial Trail (TR 30): This project proposes a network of local trails that would connect the surrounding neighborhood through the forested slopes in the area. These trails would close the gap in a much larger loop trail around Redmond that includes the Bear Creek Trail, The Sammamish River Trail, the PSE Powerline Trail, the 172nd Street Trail and the Ashford Trail. This loop was referred to in the 2010 PARCC Plan as the Centennial Trail. The City holds some of the property needed for this project but acquisition of additional access rights is needed to complete it.

- Nike Park to Hartman Park Trails: A trail network is conceptualized between residential areas, parks, open spaces the Ashford Trail, the Redmond Bike Park and down to Avondale Road.
- Nike Park to Avondale Way Trail: A trail connection is conceptualized between Nike Park and the intersection of Avondale Way and Union Hill Road.

Redmond/Puget Sound Energy Trail Gap (TR 39): The Redmond/PSE Trail is a four mile regional trail beginning west of Willows Road, crossing the Sammamish River, through Education Hill to Farrel-McWhirter Park. A gap in the trail exists between Farrel McWhirter Park and the Redmond Watershed Preserve. Since the property for this trail is outside City limits King County will lead the work to close the gap in the trail. Securing public access to the corridor is an important first step for this project.

Overlake Pedestrian/Bicycle Bridges: Two pedestrian/bicycle bridges are planned for the Overlake area that will make walking and biking easier in the area especially to Microsoft campus locations. Both will be open for public use when complete.

- Overlake Transit Center Bridge: This bridge will connect the proposed Transit Center across SR 520 to the Microsoft campus off NE 40th Street and to the SR 520 Trail.
- Overlake Village Bridge: This bridge will connect the development planned for the Overlake Village area across SR 520 to the Microsoft campus on NE 31st Way and to the SR 520 Trail.

Appendix 6 A: Policies

The following is a compilation of policies from all elements of the City Comprehensive Plan that are related to the planning, design and development of trails. Policies are arranged by the element name under which they appear in the Comprehensive Plan.

Goals, Vision and Framework Policies

FW -29 Maintain and promote a vibrant system of parks and trails that are sustainably designed, preserve various types of habitat and protect the natural beauty of Redmond.

FW-37 Influence regional decisions and leverage transportation investments that support Redmond's preferred land use pattern and vision by increasing mobility choices and improving access between the city and the region for people, goods and services.

FW-41 Preserve Redmond's heritage, including historic links to native cultures, logging, and farming, and its image as the Bicycle Capital of the Northwest, as an important element of the community's character.

FW-44 Promote opportunities to enhance public enjoyment of river and lake vistas and provide public places to take advantage of the Sammamish River as a community gathering place.

Community Character and Historic Preservation Policies

CC-24 Design and create trails, sidewalks, bikeways and paths to increase connectivity for people by providing safe, direct or convenient links between the following:

- Residential neighborhoods,
- Schools,
- Recreation facilities and parks,
- Employment centers,
- Shopping and service destinations, and
- Community gardens.

CC-25 Preserve trailheads and equestrian connections, including those between Bridle Trails State Park in Kirkland, the Sammamish River equestrian trail, Farrel-McWhirter Park, Bridle Crest Trail, Redmond Watershed Preserve, Puget Power Trail and the Tolt Pipeline Trail, and the rural areas adjacent to the city to the north and east, such as King County's Kathryn Taylor Equestrian Park.

Natural Environment Policies

NE-12 Encourage environmentally friendly construction practices, such as Leadership in Energy and Environmental Design (LEED), King County Built Green, and low-impact development.

NE-16 Use Best Available Science to preserve and enhance the functions and values of critical areas through policies, regulations, programs, and incentives**.**

NE-18 Use science-based mitigation to offset unavoidable adverse impacts to critical areas.

NE-141 Minimize overhead lighting that would shine on the water surface of the city's various streams. Encourage the use of pedestrian level or shaded lighting when providing lighting along the Sammamish River Trail.

Transportation Policies

TR-12 Assign high priority to pedestrian and bicycle infrastructure projects and mitigation that address safety and connectivity needs, provide access to Downtown and Overlake Urban Centers, encourage safe and active crossings at intersections and routes to schools, provide linkages to transit, and complete planned bicycle and pedestrian facilities or trails.

TR-13 Use the Bicycle and Pedestrian Plans in the Transportation Master Plan to guide the design, construction and maintenance of bicycle and pedestrian facilities by public and private parties, including the preparation of design standards and elements that promote a pleasant and safe traveling environment.

TR-15 (Excerpt) Require that during the review process for new development or redevelopment that:

- Construction and implementation of other off-road and multi-use trails and trail crossings, as described in the Parks, Arts, Recreation, Culture and Conservation Plan (PARCC) Plan, or which are located within a development area or within a shared corridor, are coordinated with project review; and

TR-16 (Excerpt) Implement the Pedestrian Plan contained in the Transportation Master Plan to:

- Provide for a safe, convenient and coordinated system of sidewalks, trails and pathways, including through routes, crossings and connections, to meet needs for pedestrians;

Parks, Arts, Recreation, Culture and Conservation Policies

PR-1 Provide a system of parks, recreation, arts, trails, and open space to serve existing development and planned growth.

PR-6 Distribute parks and recreation and cultural facilities throughout Redmond to improve walkability and provide an equitable distribution of parks based on population density. Encourage this type of planning by calculating neighborhood park and trail level of service standards based on neighborhood populations.

Boardwalk trail at Redmond West Wetlands

"Provide a system of parks, recreation, arts, trails, and open space to serve existing development and planned growth."

- Policy PR-1

PR-43. Develop and promote an interconnected community through trails and pathways easily accessed by a variety of trail users.

PR-44. Maintain and utilize a hierarchy of trails and trail design standards based on function.

PR-45. Ensure the ease of using the trail system and attract new users by providing a well-designed signage and wayfinding system.

PR-46. Promote the concept and use of the "Blue Trails" waterways by coordinating with jurisdictions and other organizations in the region.

PR-47. Promote safe and convenient non-motorized travel to parks, trails, and recreational facilities through the planning of trails, bike lanes, safe walking routes and public transit routes with City departments, surrounding jurisdictions, state and federal agencies and private organizations to reduce dependence on vehicles.

PR-48. Cooperate with local, state and federal agencies and private organizations in development of the local and regional trail system.

PR-49. Encourage development of trails that are separated from traffic, with an emphasis on safety and minimizing conflicts between various trail users.

PR-50. Encourage King County to develop, maintain and promote the trail on the west side of the Sammamish River to enhance access and views of the Sammamish River, and to develop the missing link along the PSE Trail between Farrel-McWhirter Park and The Redmond Watershed Preserve.

PR-51. Design development along the Sammamish River to orient toward the river and reinforce its identification as a community gathering place and recreation area in a manner that is sensitive to and protects the natural environment.

PR-52. Coordinate with Eastside Rail Corridor Regional Advisory Committee partners on the planning and development of the Redmond Central Connector, and connections to the Eastside Rail Corridor and East Lake Sammamish Trail, as a regional trail with opportunities for community gathering, art, culture and historic interpretation, as well as for light rail transit, options for other transportation connections and utility placement.

PR-53. As a complement to the citywide pedestrian pathway system, the City should develop a visual system for enhancing connections to the shoreline and identifying shoreline areas, considering such elements as street graphics, landscaping, street furniture or artwork. (SMP)

PR-54. Increase use of trails by developing trailheads adjacent to regional or connector trails that can be easily accessed by vehicles or transit. Provide parking, trail information and restrooms at trailheads where appropriate.

Appendix 6 B: Goals for Trails from Public Feedback

Community members shared their priorities during the public meetings, focus groups, and surveys as part of the PARCC Plan visioning process in 2015. The guidance gained from over 1,200 participants has helped formulate citywide goals for trail planning. Below is a full list of ideas expressed by the public and gathered during the outreach process. Details regarding outreach can be found in Chapter 3 Community Engagement.

1. Continue to put safety for all users as the top priority for trail planning and design by implementing physical and educational trail safety measures on regional trails regarding speed and trail etiquette. Consider separating trail users with two parallel trails.
2. Continue to keep Redmond's trails clean, well maintained and welcoming.
3. Trails need to be: wide enough to handle volumes and minimize user conflicts; usable at night and in twilight; comfortable for a wide range of users; accessible and easy to navigate with wayfinding; and connect with other systems such as sidewalks, bike lanes and transit.
4. Maintain and enhance a safe environment for equestrians on Redmond trails and increase horse-friendly access points to the trail network.
5. Create a more connected pedestrian and bicycle network through a coordinated citywide effort to plan and implement on-street and off-street trail facilities.
6. Plan and design trails to accommodate a wide range of users by considering user purpose, mode, speed, and other factors.
7. Seek out and build small, neighborhood-level connections that shorten the routes between destinations such as homes, parks, natural areas, schools, neighborhoods, employment centers, civic centers, shopping, and entertainment.
8. Keep working toward the goal of providing everyone that lives or works in Redmond with access to a trail within a ¼ from their home or office.
9. Make walking and biking easier than traveling by car.
10. Encourage and facilitate bike-share programs to make bicycling a viable and convenient option of travel.
11. Continue to work toward completing the vision of the Eastside Rail Corridor connecting Redmond to other regional trails via the Redmond Central Connector.
12. Gain access to the trails in the Willows Fjord area.
13. Complete trails such as the Bear-Evans Creek trail system, the Redmond/PSE Trail to the Watershed, the Redmond/PSE connection to Kirkland, and others.
14. Improve the Blue Trails to include smaller steps to the launch points, recovery places along portage routes (from parking areas), interpretive signs along the trail, maps at launch points, and mileage markers in the water. Implement the access point conceptualized in Redmond's Municipal Campus Master Plan.

15. Include more trail amenities on regional trails such as benches, pet stations, play structures, kiosks, water fountains, equestrian hitching posts and mounting blocks, charging stations for e-bikes, bike lockers near transit, and art.
16. Add wayfinding signs along trails indicating the trail name, distance to the next intersection, and cross roads or trails. Include City gateway signs on regional trails at the City limits.
17. Use the trail system as a stage for connecting the community through art and culture. Provide interesting places and facilities for community and cultural connections to occur.
18. Provide ample volunteer opportunities for the community to engage in and build ownership of the trail system. Consider new partnerships and contracts with volunteer management groups such as Forterra, Evergreen Mountain Bike Alliance, Cascade Bicycle Club, and others.
19. Provide a variety of trail experiences from busy, paved urban trails filled with art and connections to shopping, to quiet, earth surface trails that make nature just a step away.
20. Continue to maintain the Redmond Bike Park with volunteer Trail Stewards.
21. Increase the awareness and promote the use of trails with up-to-date maps of the trail system. Work with online mapping systems, such as Bing Maps and Google Maps, to ensure that the trail data being used is accurate.

Appendix 6 C: Trail Design Standards

Trail design standards were developed for the following reasons:

- Simplify design and permitting review, especially when private developers are required to build trails or trail connections
- Save time and money for engineering contracts by having a standard set in place
- Ensure that trails are built to safe and environmentally sound standards
- Have consistency within our trail system

The City of Redmond has designated four types of trails:

- Regional Trails
- Connector Trails
- Local Trails
- Blue Trails

Each of the trail types are described below and examples are shown in the photographs to the right.

The Sammamish River Trail is a regional trail connecting Redmond to Kirkland and Marymoor Park.

The Ashford Trail is a connector trail that links Hartman Park to Avondale Road.

Local trails in Viewpoint Open space.

Regional Trails

Regional trails are typically planned and designed with active transportation and high volume recreation use as their primary purpose. Regional trails are paved. Exceptions may be made for a gravel surface as an interim use condition with plans for paving in the future. Regional trails follow the design standards for Shared Use Paths as specified in the City of Redmond's Bicycle Facilities Design Manual Guidelines (2016 or latest version). In general, regional trails are completely separated from roads by distance or barriers and at-grade crossings of roadways are minimized to avoid conflicts. In instances where property is insufficient, regional trails may be placed adjacent to road ways. These trails are referred to as "urban pathways" or "side-paths" in other City planning documents. Regional trails should be a minimum of 12 feet wide under most

conditions, with a minimum two-foot wide graded area on both sides that should be flush with the trail. Wider trails may be necessary when more than 2,000 people a day are using a trail, pending peak volumes. Ideally, paved regional trails should have an adjacent four-foot wide unpaved area to accommodate a wider set of user preferences. These trails accommodate a wide range of users. They are intended to be long-distance routes that span a good portion of the city limits leading to other jurisdictions and connect to other trails. Coordination with adjacent jurisdictions and transportation planning is central to developing a complete system of regional trails.

Connector Trails

Connector trails are the key linkages between regional trails and other key areas. These trails can be paved or soft surface trails, but are typically narrower than regional trails, due to more limited use and possible land access issues. These trails are designed for recreation and transportation uses. Connector trails should meet the city's sidewalk standards as a minimum and have a width of six feet to eight feet. However, interim uses and sometimes long-term uses require the use of soft surface materials. These trails are in high demand by the community as key infrastructure to make walking and bicycling more convenient modes of travel within Redmond.

Local Trails

Local trails are typically soft surface trails that can range from one foot to five feet wide. These trails are typically designed for recreational uses such as neighborhood links, park trails, and hiking, off-road bicycling, and equestrian trails. These trails can also meet special interest activities such as BMX and mountain biking. Local trails are typically constructed with native soil from the site or with a surface of gravel or wood chip material if additional reinforcement is required. Trail surfaces are graded slightly to reduce the potential for erosion. Some local trails may require structures such as retaining walls or bridges.

Blue Trails

Blue trails are water trails along navigable waters within the city such as the Sammamish River and Lake Sammamish. The primary design criteria for blue trails include providing frequent access points to the water where personal water craft can be safely and easily transported from parking areas and providing adequate signage and route finding materials. Redmond is part of the Lakes to Locks Trail, a system of blue trails that connects the Sammamish River in Redmond to Lake Washington and beyond.

6C.1 Trail Surface Materials

The following exhibit lists some of the acceptable trail surface types. However, pervious materials are preferred and new products are encouraged, but would require review by the technical review committee.

Exhibit 6C.1: Trail Surface Materials

Product[1]	Soft Surface	ADA	Functionality	Transportation Fundable	Durability	Permeable
Concrete	No	Yes	B,P,W,S	Yes	25 years	No
Permeable Asphalt	No	Yes	B,P,W,S	Yes	8 years	Yes
Asphalt	No	Yes	B,P,W,S	Yes	10 years	No
Soil	Yes	No	MB,P,E	No	Life with maintenance	Yes
Pavers with fines	No	Yes	B,P,W,S,E	Yes	15 years	Yes
Hog Fuel (wood shavings)	Yes	No	P,E,MB	No	1-3 years	Yes
Gravel	Yes	No	P,W,E,MB	No	2-5 years	No
Filbert Shells	Yes	No	P,W,E,MB	No	7-10 years	Yes
Grass and Gravel filled pavers	Yes	Yes	B,P,W,E	No	up to 25 years	Yes
Crushed fines <3/8"	Yes	Yes	B,P,W,S,E	No	2-5 years	No
Permeable Concrete	No	Yes	B,P,W, sometime skate depending on type	Yes	15 Years	Yes

B = Bicycle,
P = Pedestrian
S = Skate
W = Wheelchair
E = Equestrian
MB = Mountain Bike

[1] Derived from Alta Planning + Design, "What's Under Foot", and other product webpages.

6C.2 Trail Amenities

Trail amenities include items that provide trail users comfort such as benches, signs, garbage receptacles, drinking fountains, bicycle racks, pet stations, equestrian mounting and dismounting stations, and information kiosks. The following are a list of some of the standard City of Redmond amenities. Those that are not listed can be proposed on a project by project basis.

Example of a trail sign

Signs – Three to four individual signs are generally included on trail signage. All are placed on a 6"x6"x6' post of ground-treated lumber. Two feet of the post is set in the ground. The signs are each 9" x 9", brown background with white trim. They include:

- Map and Trail Name with City of Redmond logo
- Mileage to specific destinations
- Directional arrow
- Designated Use (pictures of horse, hike, bike, etc)

Example of a bench

Benches – In the park system the standard benches include: Pilot Rock OWRB or SWB/G-6TP (www.pilotrock.com). However, the City supports the construction and installation of "natural" benches out of native materials in these more natural settings.

Trash Receptacles – The City currently uses Pilot Rock TRH-32 trash receptacles, with recycled plastic slats and molded plastic domed lid. Recycle containers are the same product with a different lid configuration. (http://www.pilotrock.com/trash_recycling/trh_series.htm)

Equestrian Mounts – Treated wood structure consisting of two steps, each approximately 9 inches in height. The top platform is covered in wire mesh to reduce slipping.

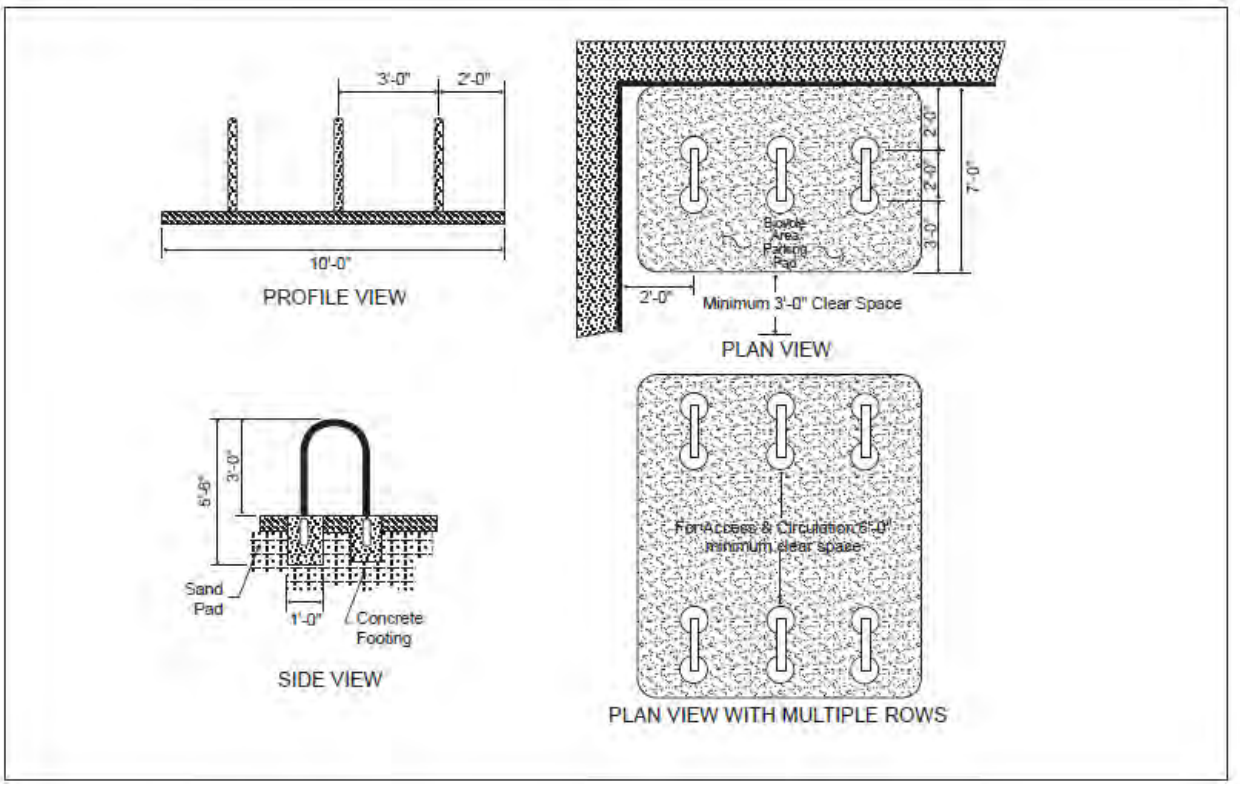
Kiosks – There are unique kiosks at Watershed Preserve, Farrel-McWhirter Farm, and Idylwood Beach Park. None are exactly the same. The City is developing a new kiosk standard.

Pet Stations – The City's current standard is Dogi-pot (http://www.dogipot.com/p_junior.htm). These are not placed at every trail location, but located in areas of high use by pet owners.

Drinking Fountains – The City uses Most Dependable Fountains (http://www.mostdependable.com/) including the pedestal model (MDF410) and wall mount fountains, and sometimes the City orders the fountain with a pet attachment.

Bicycle Racks – The City of Redmond *2009 Bicycle Facility Design Manual* provides guidelines for bicycle racks. Racks should be cast in concrete or bolted to concrete for security.

Exhibit 6C.2: Bicycle Rack Placement Guidelines



6C.3 Design Alternatives

The following sections provide design standards for each trail type. For all trail types, there will be cases where deviations may be necessary. For example, adequate land may not be available, elevated structures may be required, or new materials may be introduced to surface the trails. Variances from the design standards must be approved by the technical review committee.

Each trail is described with the following features:

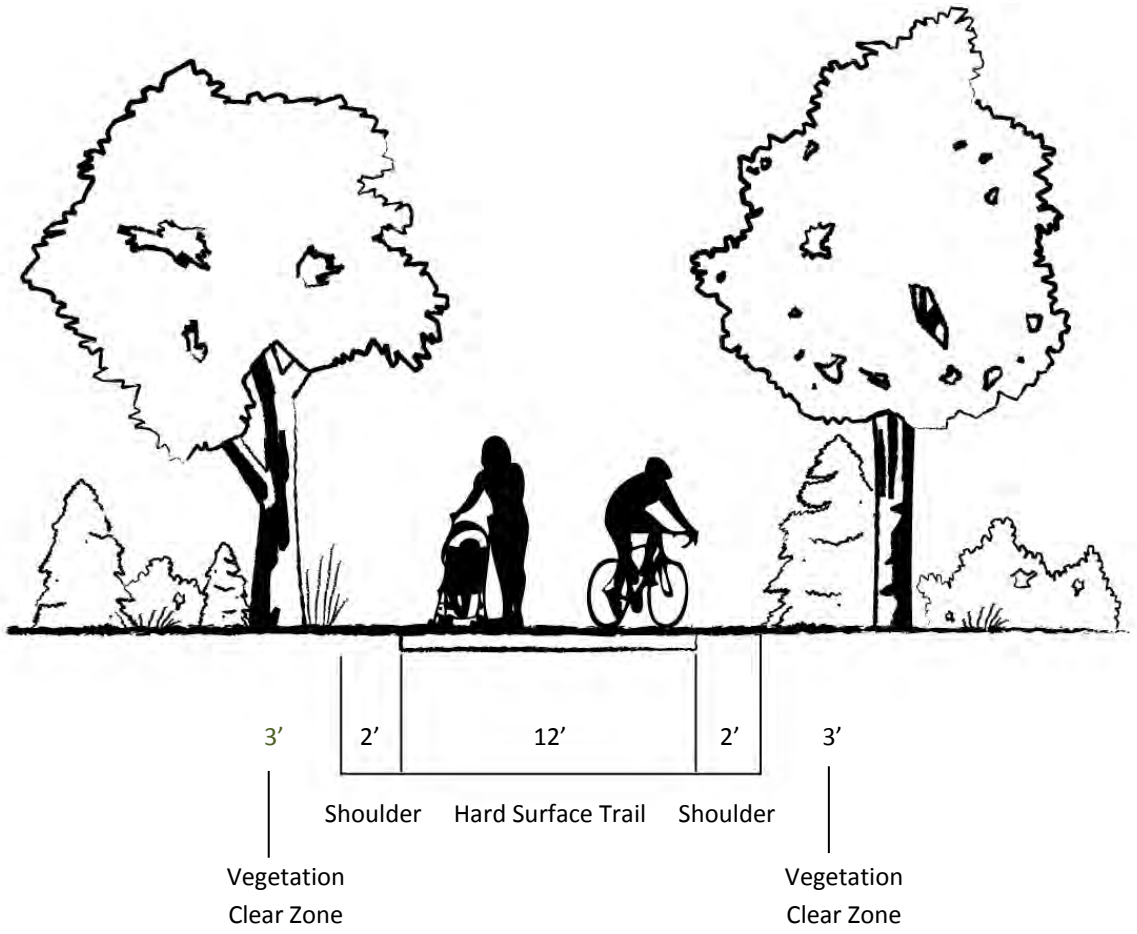
- Vegetation clear zone – the area where vegetation should be clear above and to the side of the trail. The vertical clear zone may range up to 12 feet high, and the distance from the edge of the trail is specified in the following exhibits
- Shoulder – typically a soft surface or gravel shoulder that serves as a safe zone for trail users to move to the right when being passed, for dogs to walk, and as a transition zone if traveling off the trail
- Trail – the main traveling path

6C.3.1 Regional Trails

Regional trails will typically pass through the city and connect to other trails and jurisdictions. Regional trails are also typically separated from roads. Regional trails should meet accessibility requirements as described in the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities.

Hard Surface Regional Trail

A hard surface regional trail will follow these city standards, including a 12 foot vertical clearance for vegetation and structures. This version of the trail layout is 22 feet wide total.

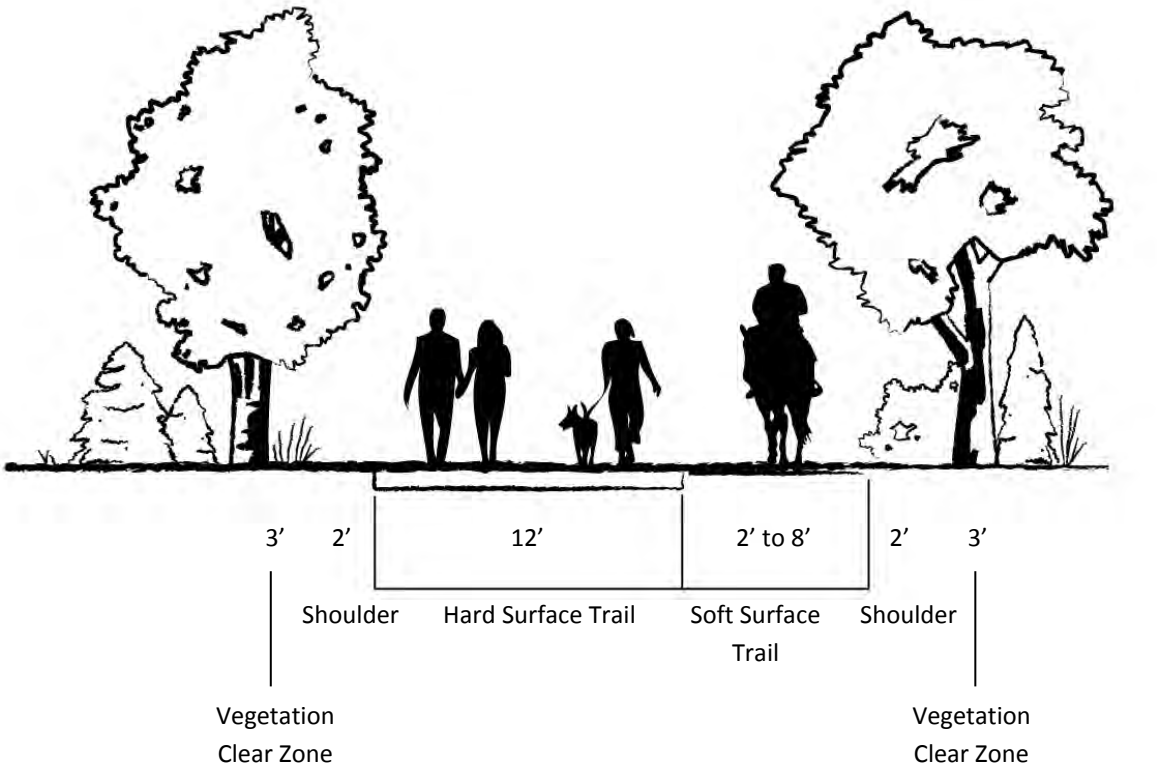


The design of the trail bed and materials will follow the most current version of the AASHTO Standards for design of shared use paths.[2] These trails are typically eligible for transportation funding, as they are considered a transportation facility (for bicyclists). These trails would preferably have an adjacent or parallel soft surface trail. The following exhibits show various layout alternatives for the hard surface.

[2] 2012, AASHTO. Guide for the Development of Bicycle Facilities. (Use most current version available).

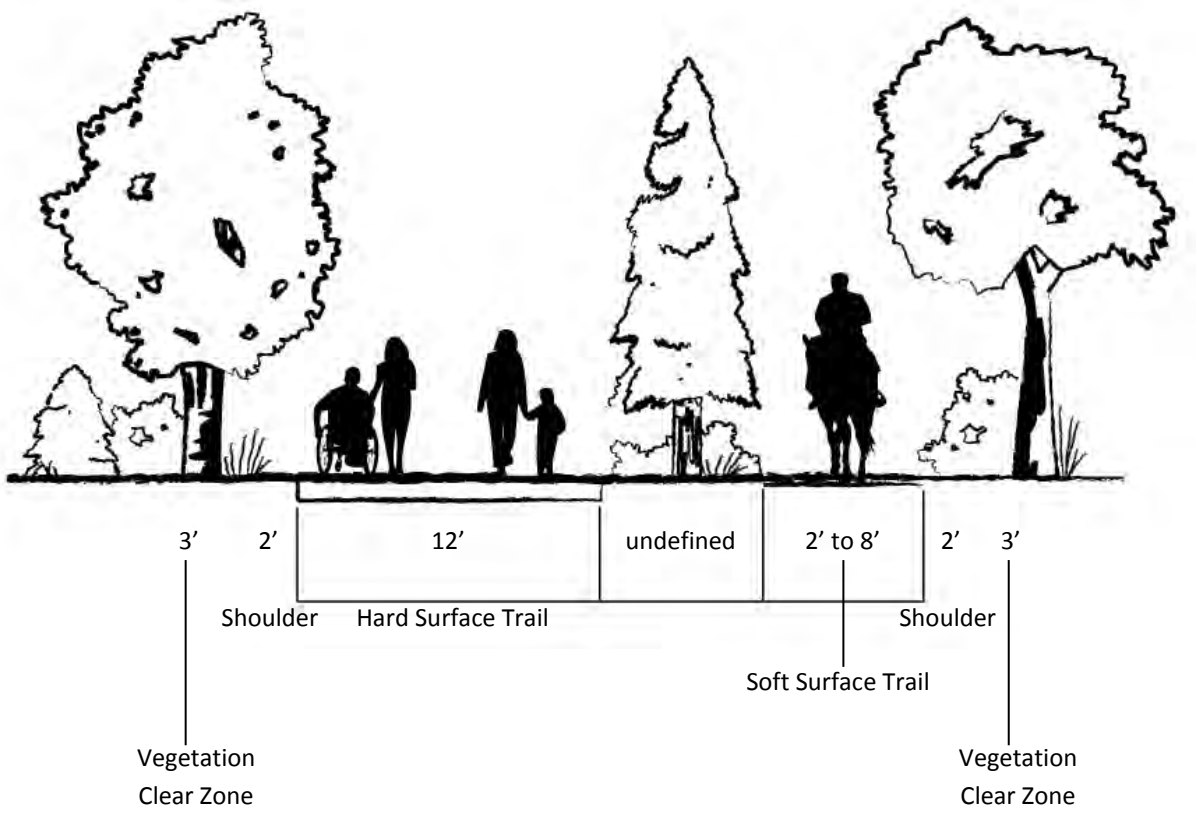
Hard Surface Regional Trail with parallel Soft Surface Trail - Adjacent

If soft surface and hard surface trails are adjacent the cross section would be as follows. This version of the trail layout can vary from 24 feet to 30 feet wide total. The soft surface trail might parallel the hard surface trail with varied separation distance, as needed. If heavy equestrian use is anticipated, a four foot separation is recommended.



Hard Surface Regional Trail with parallel Soft Surface Trail - Separate

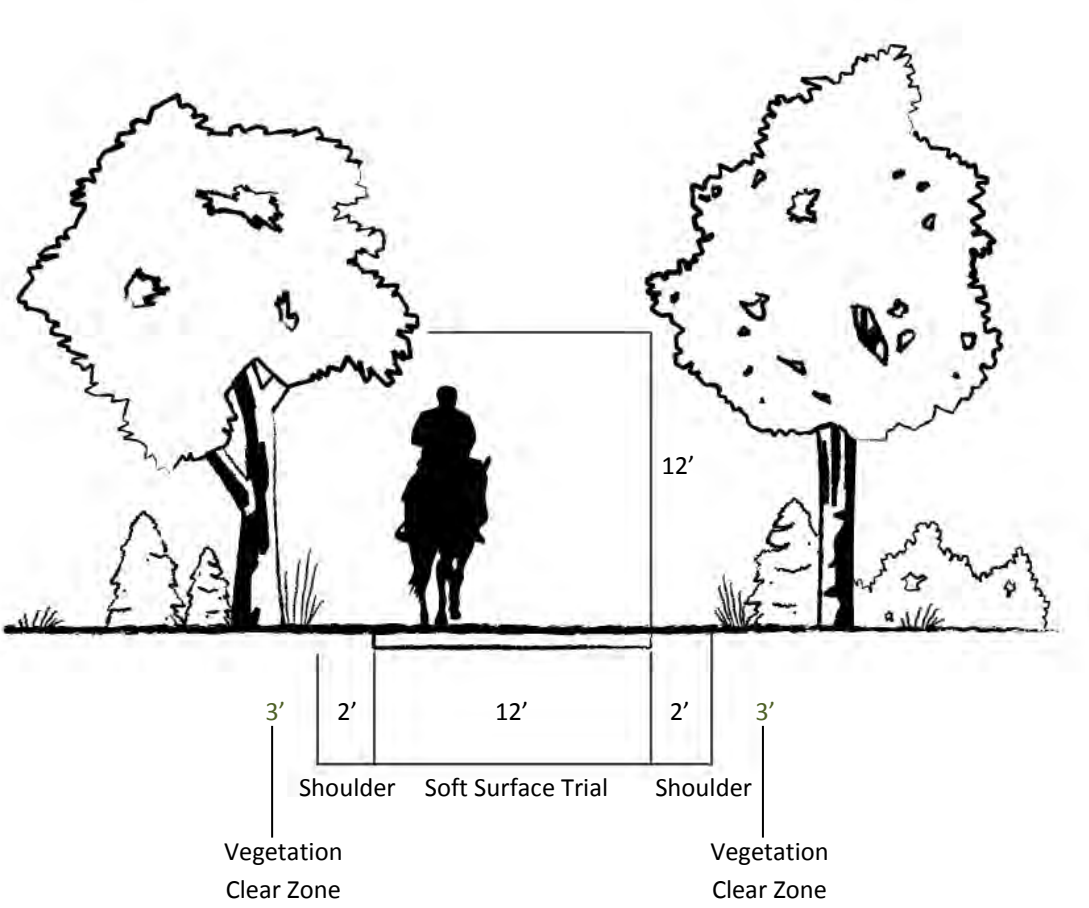
If the soft and hard surface trails are separated due to grade or physical barriers, the cross section would be as follows. This version of the trail layout can vary, but at a minimum it would be 24 feet plus the undefined area.



Soft Surface Regional Trail

Many times soft surface regional trails are developed due to demand for soft surface trails or while awaiting funding opportunities to pave them. Soft surface regional trails, like their paved counterparts, will typically span a good portion of the city and potentially connect to other trails leading to other jurisdictions.

A soft surface regional trail will follow these city standards, including a **12 foot vertical clearance** for vegetation and structures. This version of the trail layout is 22 feet wide total.

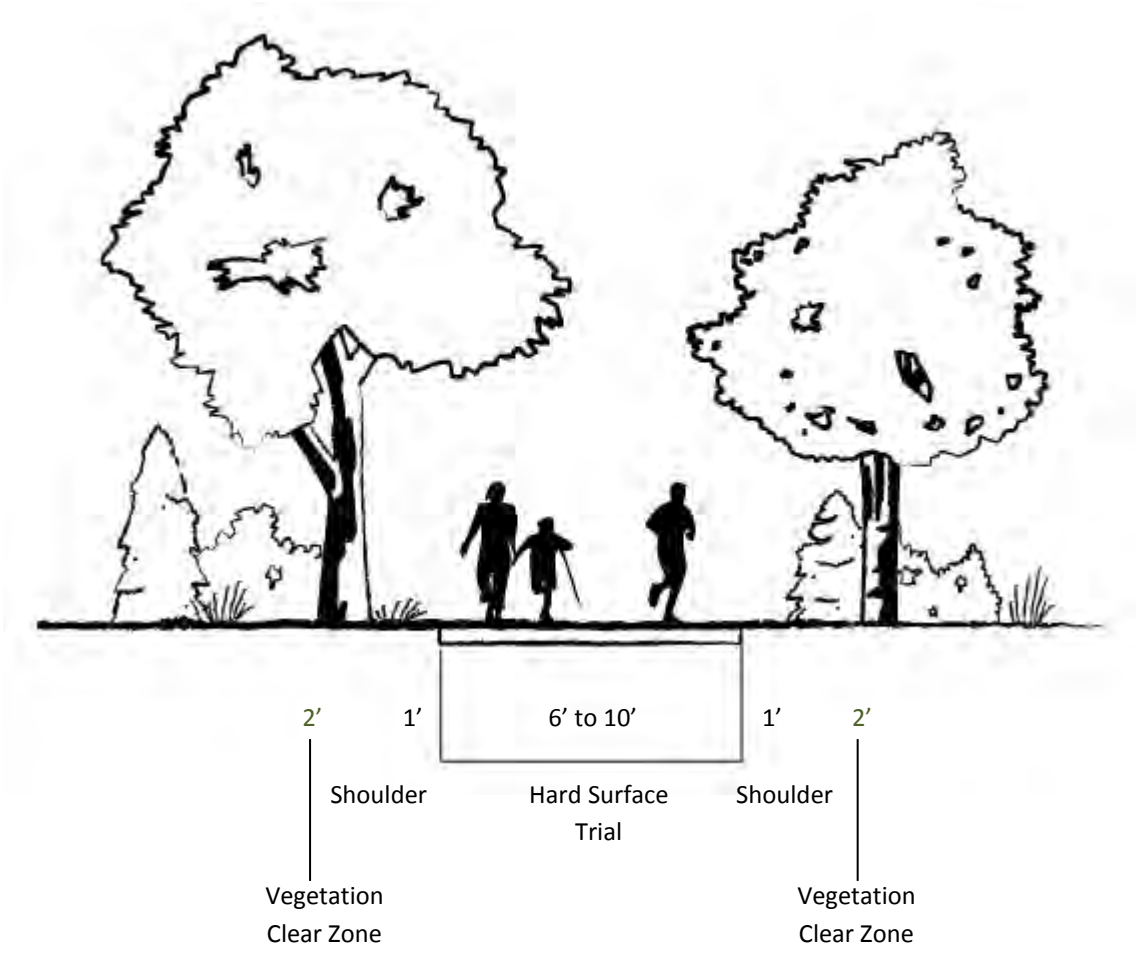


6C.3.2 Connector Trails

Connector trails are the key linkages between regional trails and other key areas. These trails can be paved or soft surface trails, but are generally narrower than regional trails due to more limited use and possible land access issues. These trails can range from six feet wide to ten feet wide to follow City sidewalk standards. Five feet may be allowed if a variance is granted. All variations would have a standard one-foot shoulder minimum. Connector trails should meet accessibility requirements as described in the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Guide.

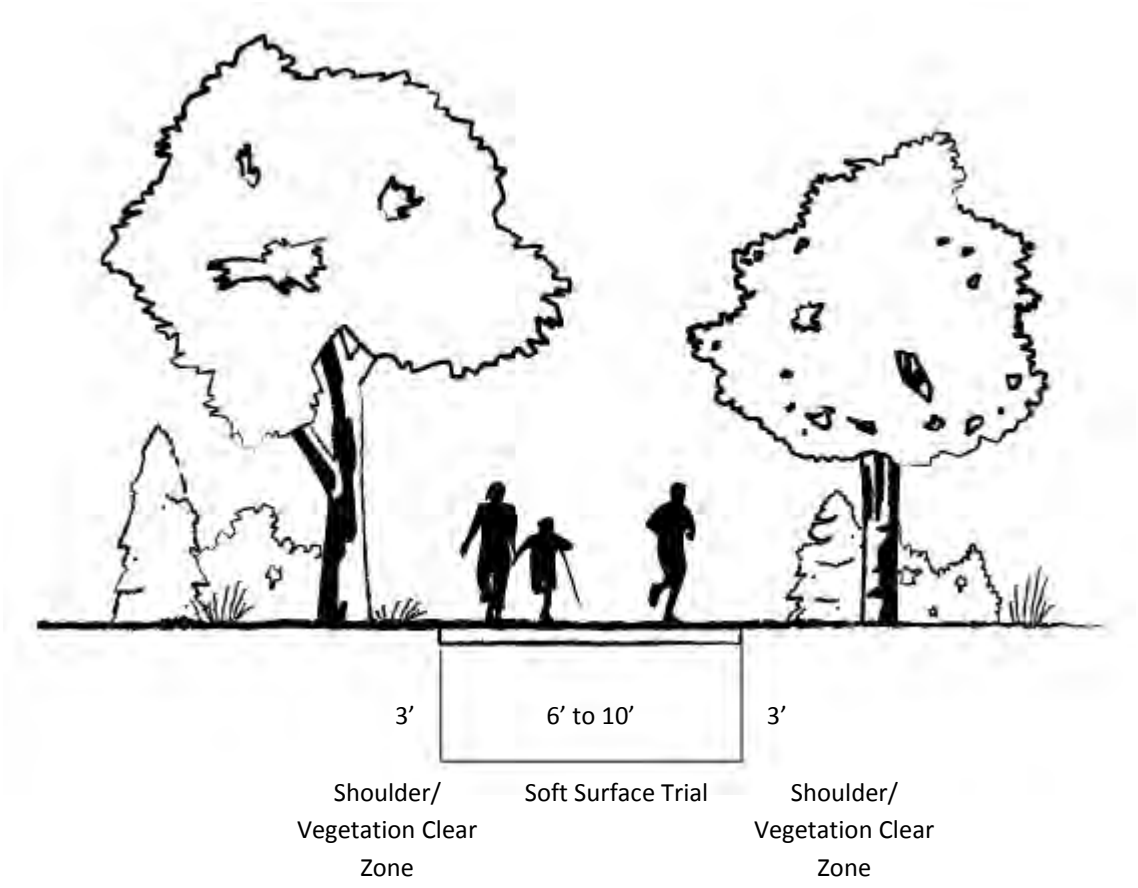
Hard Surface Connector Trail

A hard surface connector trail will follow these city standards, including a **12 foot vertical** clearance for vegetation and structures. This version of the trail layout can vary from 12 feet to 16 feet wide total.



Soft Surface Connector Trail

A soft surface connector trail will follow these city standards, including a **12 foot vertical** clearance for vegetation and structures. This version of the trail layout can vary from 12 feet to 16 feet wide total.

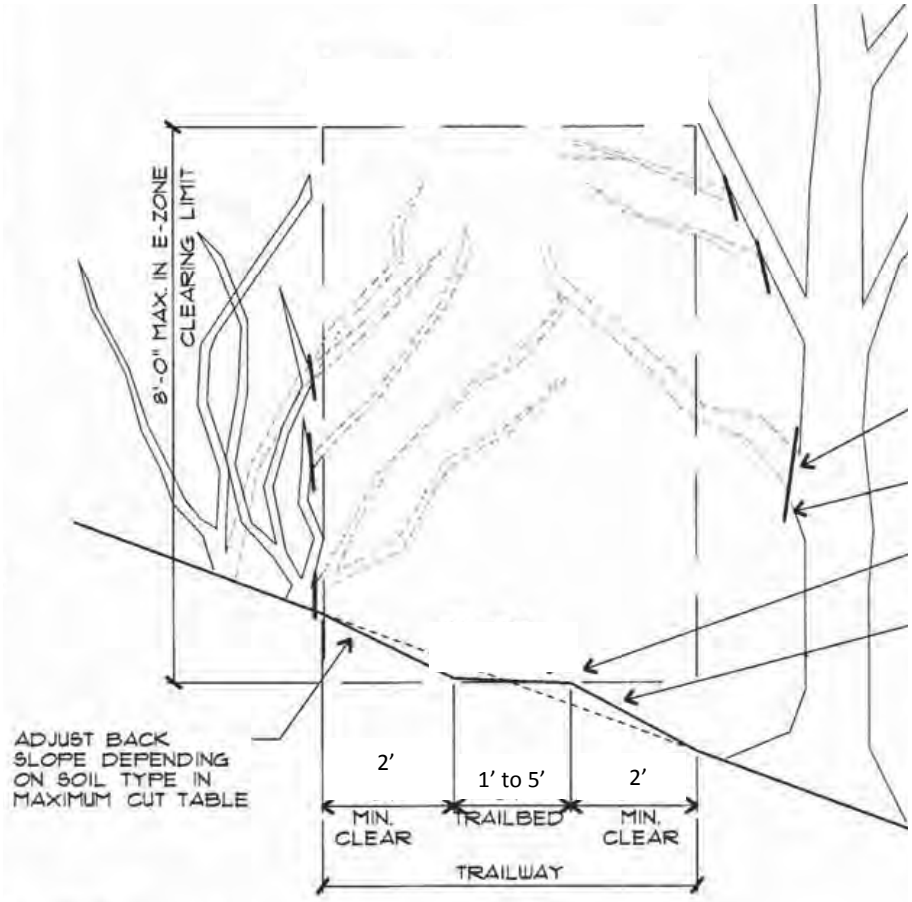


6C.3 Local Trails

These trails will most often be soft surface trails. Local trails can range from two feet to six feet wide. Narrower widths may be allowed for single-track trails. These trails are often built through wooded areas in a more natural environment for hikers, equestrians, and mountain bikers. The trails can also be used as neighborhood link trails or park trails.

Local trails will typically be constructed with the native soil from the site, hog fuel or crushed rock. Vegetation will be cleared and the trail will be graded slightly to reduce off-camber trail conditions. Some local trails may require reinforcement with gravel, pavers, bridges, or water diverting measures such as water bars in wet or eroding areas. The recommended design guidelines for local trails are provided in the most recent version of the International Mountain Bike Association's Guide to Building Sweet Singletrack. This resource is used by hiking and other trail advocacy organizations around the country for designing trails for hikers, equestrians, as well as mountain bikers.

Local trails will follow these city standards, including an **8 foot vertical clearance** for vegetation and structures. This version of the trail layout can vary from five feet to ten feet wide total. This is based on two foot-wide shoulders and a one to five foot-wide trail surface.



Adapted from the City of Portland, OR Trail Design Guidelines

6C.4 Blue Trails

Most of the water access points within the City are on King County property, adjacent to the Sammamish River, except for Idylwood Beach Park. The following guidelines apply to the City of Redmond. When designing a boat put-in on King County property, the City would defer to the County's standards. Key design standards for blue trails should include:

- Provide access points at fairly frequent intervals (5 miles or less for rivers)
- Provide adequate parking to meet demand. Hand carry launches and boat ramps should be constructed of hard surfaced materials. Boat slides may be allowed where banks are steep
- Have information kiosks and brochures at each access point that orients users to the trail, and contains a map describing public use areas, sanitation stations, emergency telephone numbers and locations of telephones, camp sites, rules and regulations
- A "leave no trace" philosophy of use should be advocated in the literature and on information kiosks
- Riparian areas should be protected and maintained as functioning buffers
- Public lands should be clearly identified from the route
- Mile markers should be posted along the route and tied to the map in the brochure
- Prohibitions against trespass on private land should be clearly stated in informational literature
- Provide sanitation facilities at public access points and periodically along trail (5 miles suggested minimum)
- A path from the water to adjacent land area should follow connector trail standards and be accessible. The path at the water's edge should widen to 12 feet near the water's edge to provide adequate access and maneuverability

Exhibit 6C.3: Path to Canoe/Kayak Launch

Left - Path leading from parking area to launch point at Luke McRedmond Landing on the Sammamish River
Right – Launch area at the NE 90th Street Bridge off the Sammamish River Trail

Appendix 6 D: Build Out Trail Project List

During the creation of this plan, many creative ideas for potential trail projects were presented and recorded. As described in Chapter 2 Community Engagement, members of the public were given opportunities to present their ideas for trails. In addition, other planning efforts such as the 2010 PARCC Plan, neighborhood plans, and past transportation planning have produced concepts for potential trail projects. Trail project concepts from all of these were recorded in the trail GIS data used for this plan. Also, all of the trail concepts recorded were evaluated as described in the feasibility evaluation step of the implementation section of this chapter. The Build Out Trail Project List below includes all of the trail concepts included in this plan. Some of the concepts received feasibility scores below the level needed to move on to planning level studies and project recommendation.

Exhibit 6D.1: Near-term Priority Trail Projects

Project Name	Project Number	Trail Classification
NE 100th St to Willows Trail	TR 1	Connector
RCC Connection - 87th Crossing at Willows Rd	TR 2	Connector
RCC Connection - 84th St Stairs	TR 3	Connector
RCC Connection - 90th Bicycle Link	TR 4	Connector
RCC Connection - Red160 Connection	TR 5	Connector
Tosh Creek Trails Ph I	TR 6	Local
Overlake Transit Center Bridge	TR 50	Regional
Overlake Village Bridge	TR 51	Regional

Near-term priority trail projects are scheduled to be planned and implemented within the 6 year planning horizon of this plan.

Exhibit 6D.2: Mid-term Priority Trail Projects

Project Name	Project Number	Trail Classification
10201 Willow Crossing to RCC	TR 7	Connector
Audubon Elem. Area Trails	TR 8	Local
NE 84th and 85th connections to 139th Ave	TR 9	Connector
Redmond Central Connector Phase III	TR 10	Regional
Marymoor to W LK Sammamish Trail	TR 13	Regional
West Sammamish River Trail Paving & W Lake Sammamish Pkwy Crossing	TR 12	Connector
161st Ave to Rockwell Trail	TR25	Connector
Ben Rush School to Bridle Crest Trail	TR 29	Local
Lakeside Trail	TR 31	Local
Nike Park Trails	TR 30	Local
Faith Lutheran to Red-Wood Rd	TR 34	Connector
NE 73rd to Grass Lawn Connection	TR 38	Local

Mid-term priority trail projects are scheduled to be planned and implemented within the year 2030, the ultimate planning horizon of this plan.

Exhibit 6D.3: Long-term Priority Trail Projects

Project Name	Project Number	Trail Classification
Bear & Evans Creek Trail 1	TR 15	Regional
Bear & Evans Creek Trail 8	TR 11	Regional
148th Ave NE Multiuse Trail - Bridle Crest Trail to 520	TR 18	Regional
148th Ave NE Multiuse Trail - Willows to Bridle Crest Trail	TR 17	Regional
150th Ave NE Nonmotorized Connection	TR 16	Connector
156th Ave NE Multiuse Trail	TR 19	Regional
185th Ave NE at 67/68th	TR 20	Connector
Bear & Evans Creek Trail 10	TR 21	Connector
Bear & Evans Creek Trail 3	TR 23	Regional
Bear & Evans Creek Trail 4	TR 24	Regional
Bear & Evans Creek Trail 7	TR 22	Regional
Bear & Evans Creek Trail 5	TR 26	Regional
Bear Creek Trail to Marymoor 1	TR 27	Regional
East Lake Sammamish Trail	TR 28	Regional
NE 111th Ct to NE 112th Way	TR 32	Connector
NE 116th Trail 1	TR 33	Connector
NE 116th Trail 4	TR 35	Connector
NE 80th St Trail	TR 36	Connector
Overlake Urban Pathway	TR 37	Connector
PSE Powerline Trail 6	TR 39	Regional
PSE Trail & Willows Crossing	TR 42	Regional
PSE Trail West (N/S) - North	TR 40	Regional
PSE Trail West (N/S) - South	TR 41	Regional
Willows to 154 Ave NE	TR 46	Connector
Willows to Redmond Way Connector Trail	TR 47	Connector
Woodbridge Extension Trail	TR 48	Connector
Woodbridge Neighborhood connector Trail	TR 49	Connector
Redmond Way Trail 2 (180th to Bear & Evans Creek Trail)	TR 96	Regional

Long-term priority trail projects are scheduled to be planned and implemented within the year 2040.

Exhibit 6D.4: Long-term Priority Trail Projects

Project Name	Project Number	Trail Classification
116th ST. East of Juel to North of Einstein	TR 60	Connector
124th Street Trail	TR 61	Connector
156 Ct to PSE Trail	TR 82	Connector
172nd Street Trail	TR 52	Connector
182nd Pl Trail	TR 75	Connector
85th Street to Nike Park Trail	TR 85	Connector
Ardmore Village Stormwater Trail	TR 64	Local
Avondale to Farrel-McWhirter	TR 59	Local
Avondale Trail 116th to 130th	TR 73	Connector
Avondale Trail PSE to NE 116th	TR 53	Connector
Bear Creek to Grass Lawn Connector Trail	TR 89	Regional
Bear Creek Trail to Marymoor 2	TR 94	Local
Centennial Trail	TR 55	Local
Connector Trail from Old School House	TR 57	Local
Ficher Village Trail Monticello Creek	TR 70	Local
Hartman to 176th Cir. Trail	TR 77	Connector
Juel Park to NE 116th	TR 74	Connector
Leary Way Trail from Sammamish River to SR 520	TR 90	Regional
Marymoor Subarea Trails	TR 56	Connector
Marymoor Subarea Trails	TR 56	Connector
Marymoor Subarea Trails	TR 56	Connector
Marymoor to bridge rowing club	TR 99	Connector
NE 114th Trail	TR 71	Connector
NE 124th to NE 116th High School Creek	TR 69	Local
NE 124th to NE 116th Kensington Tributary	TR 68	Local
NE 124th to Sammamish River Trail	TR 67	Local
NE 28th - Bel-Red Crossing	TR 110	Connector
NE 28th - Bel-Red PedBike	TR 58	Connector
NE 44th Way to Cascade View Park	TR 104	Local
NE 68th Ct to 520	TR 92	Connector
NE 7th Ct to 520	TR 91	Connector
NE 80th to Avondale	TR 87	Connector
NE 87th St to 143rd Ct	TR 79	Connector
NE 95th St Trail	TR 84	Connector

Continued on next page

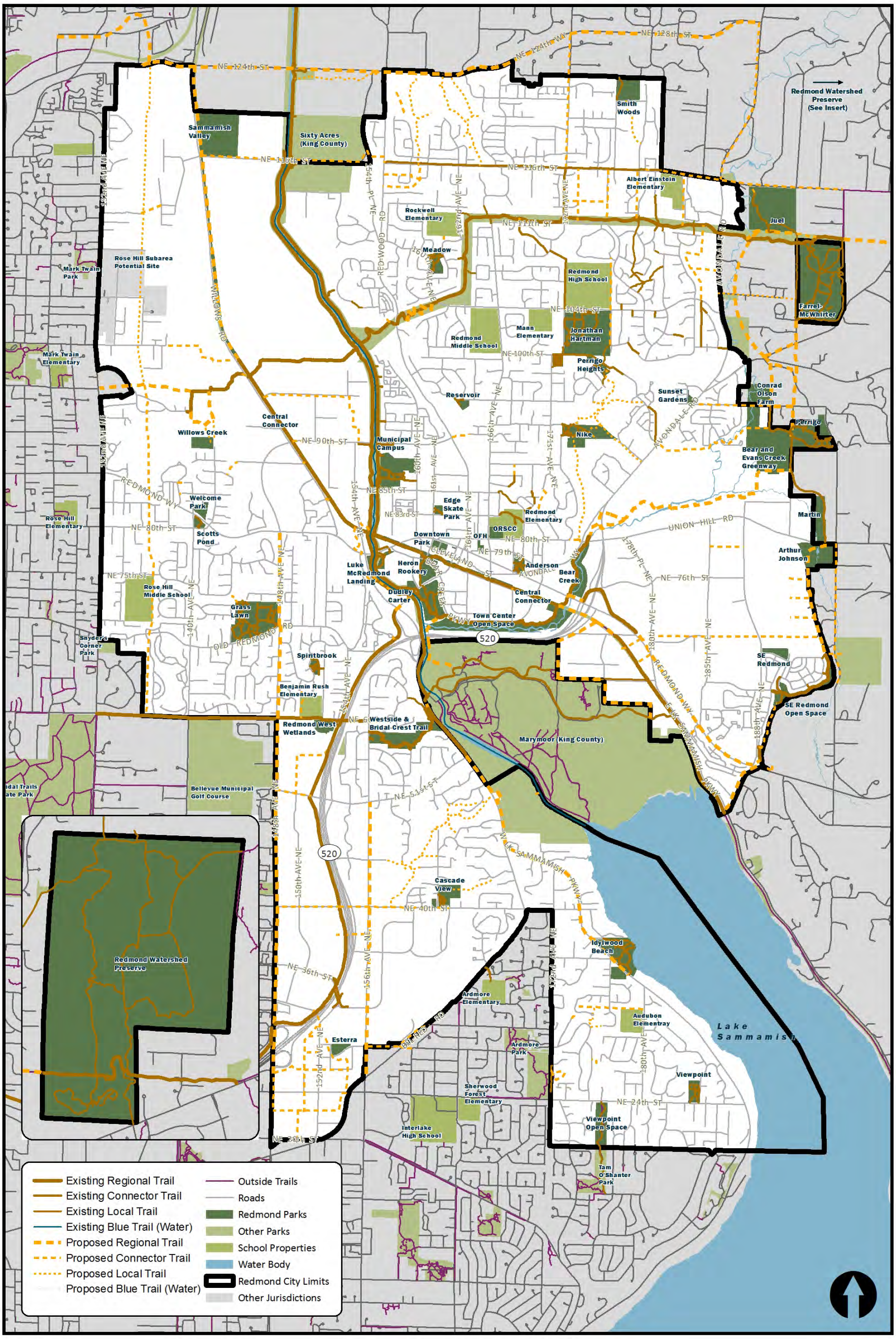
Exhibit 6D.5: Long-term Priority Trail Projects - Continued

Project Name	Project Number	Trail Classification
Old Brick Road Linear Park and Trail	TR 97	Connector
Play Waves on Sammamish River Waterway	TR 78	Water
PSE Powerline Trail 3	TR 83	Regional
PSE Trail West (N/S) North Terminus	TR 66	Regional
Redmond Way 520 Trail to Bear Creek Trail	TR 95	Regional
Redmond-Fall City Rd Park & Bike	TR 98	Connector
Sequoia Glen Trail	TR 72	Connector
Tosh Creek Trails Phase II	TR 105	Local
Valley View Trail	TR 62	Local
Valley View Trail to Avondale	TR 76	Connector
West Lake Sammamish Pkwy Trail 1	TR 102	Regional
Willows Creek NP to PSE Trail	TR 63	Connector
Willows Fjord Trails	TR 65	Local

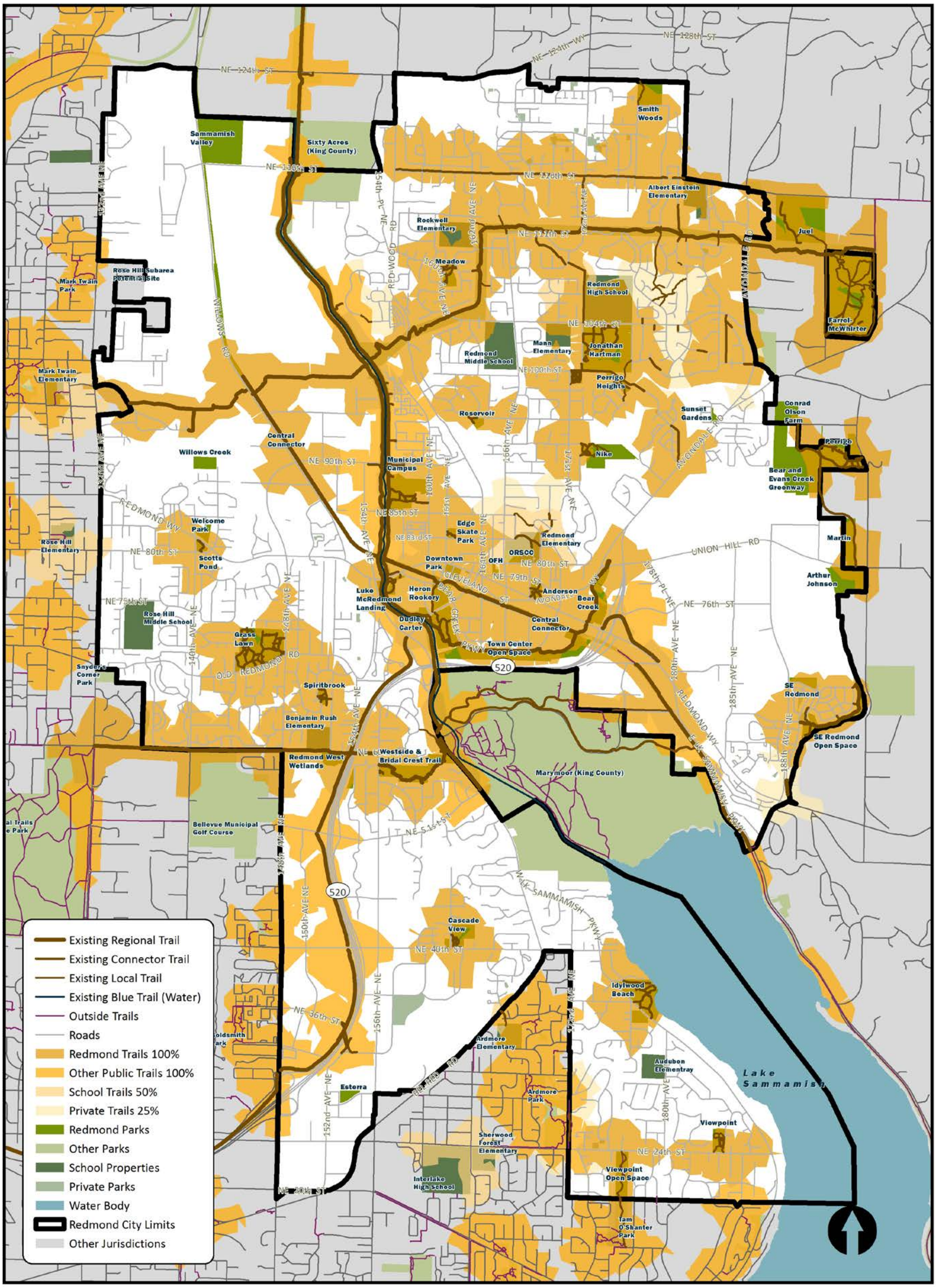
Build Out trail projects are planned to be implemented sometime beyond the year 2040. These projects represent a more complete build out of the trail system.

Appendix 6 E: Maps

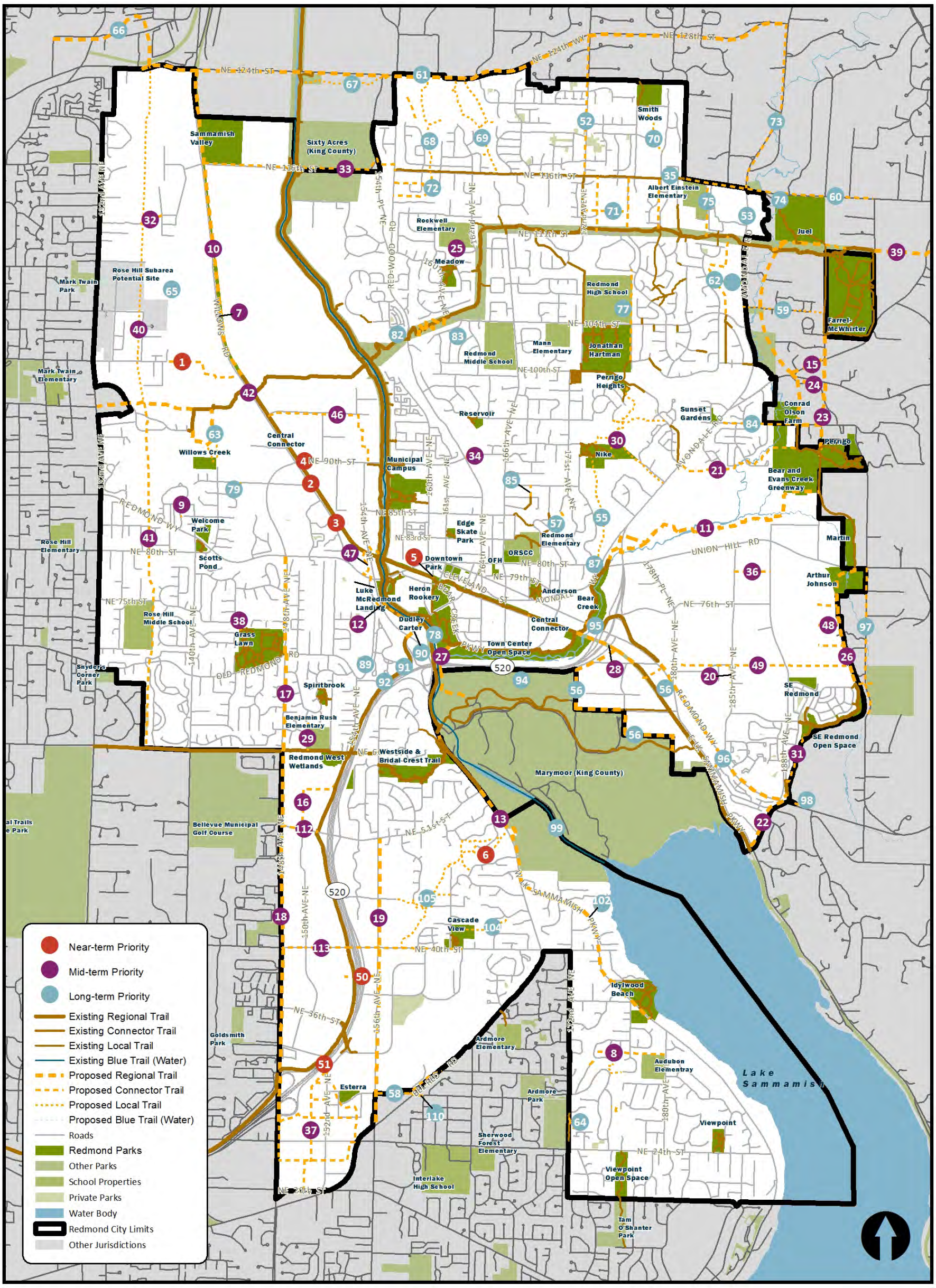
Map 6.1: Citywide Existing and Proposed Trail System



Map 6.2: Level of Service - Service Area by Provider



Map 6.3: Proposed Trail Projects Map – Build Out Plan



Project numbers shown correspond to numbering on the project lists found in Chapter 10 and Chapter 6.

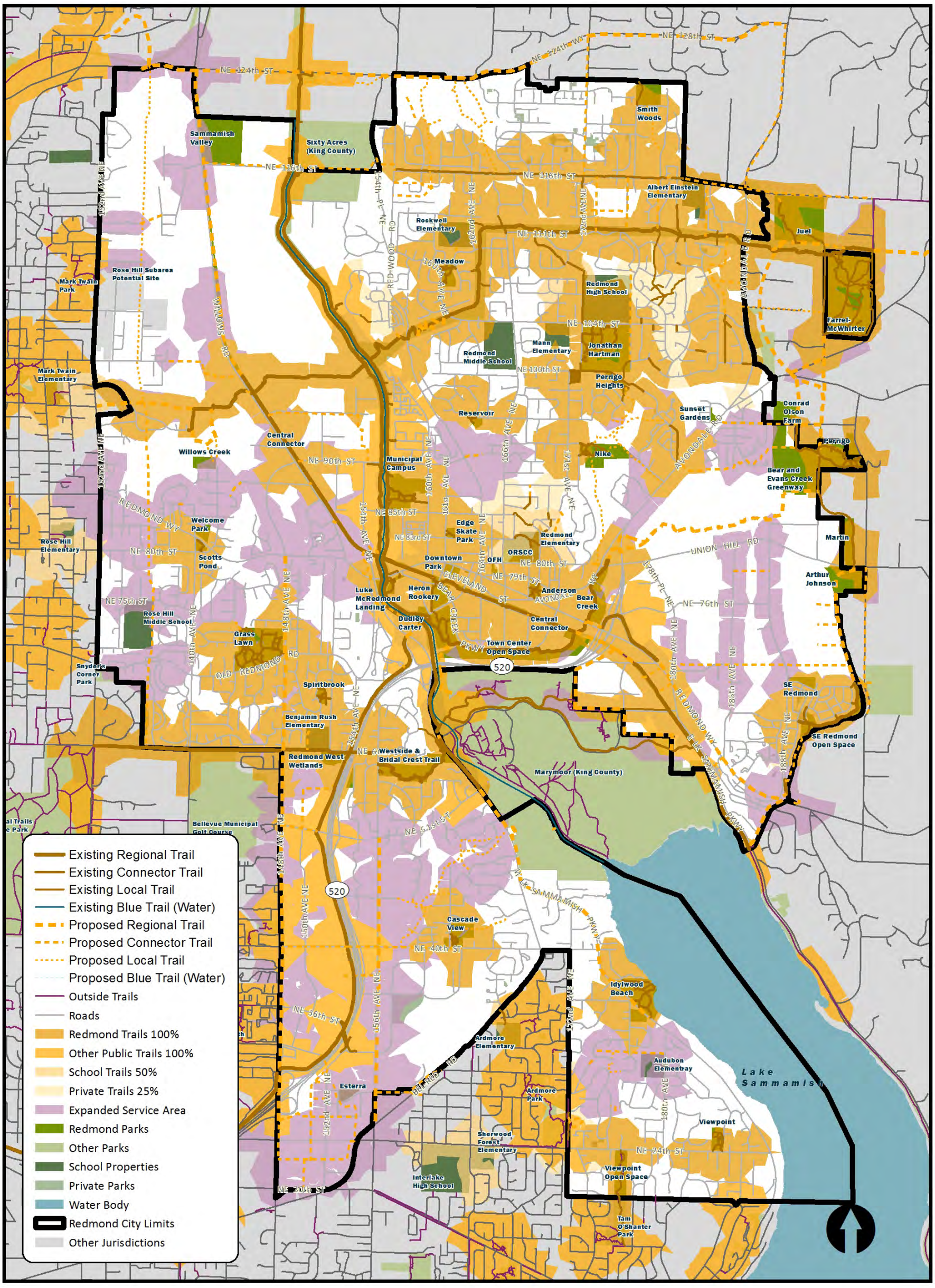
Near-term Priorities: Project prioritized to be implemented between the years 2017 and 2022.

Mid-term Priorities: Project prioritized to be implemented between 2022 and 2030.

Long-term Priorities: Projects that have been analyzed and adopted through other planning efforts such as the 2010 PARCC Plan, the Transportation Master Plan and other City plans.

Build Out: Potential long-term projects that were generated during public outreach for this plan or from other city planning efforts, such as neighborhood plans, that scored below the feasibility threshold set in the prioritization process described in section 6.6 Implementation of this chapter. These projects have merit and require further investigation and analysis.

Map 6.4: Service Area Expanded by Proposed Near and Mid-term Trail Projects



Service provided by existing facilities is represented in shades of orange which indicate the percent of the target population served in that area. City of Redmond trails and other public trails provide service to 100 percent of the target population while school trails serve 50 percent and private trails serve 25 percent. Purple areas indicate expanded service area provided by proposed City of Redmond projects which would serve 100 percent of the target population. Projects represented include those on the near, mid and long-term project lists in Chapter 10. Build Out trails shown on the Universal Trail List are not included in this analysis.